

SPECIFIED GAS EMITTERS REGULATION

TECHNICAL GUIDANCE FOR COMPLETING SPECIFIED GAS COMPLIANCE REPORTS

JANUARY 2009

Version 2.0

Alberta

ALBERTANS



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CHANGE**

Disclaimer:

The information provided in this document is intended as guidance only. This document is not a substitute for the law. Please consult the *Specified Gas Emitters Regulation* and the legislation for all purposes of interpreting and applying the law. In the event that there is a difference between this document and the *Specified Gas Emitters Regulation* or legislation, the *Specified Gas Emitters Regulation* or the legislation prevail.

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Table of Contents

Table of Contents.....	iii
List of Tables.....	v
List of Figures	v
Abbreviations.....	vi
Related AENV Publications.....	viii
SGER Forms	viii
Glossary of Terms	1
1.0 Purpose of this Document	5
1.1 Overview of Changes.....	5
2.0 Overview of the Specified Gas Emitters Program.....	7
2.1 Thresholds.....	7
2.2 Reduction Obligations	8
3.0 Overview of the Compliance Report Process	10
3.1 Process for Submitting an Annual Compliance Report	10
3.2 Compliance Options	14
3.3 Emissions Performance Credits	15
3.4 Offsets.....	16
3.5 Climate Change and Emissions Management Fund	18
4.0 Estimation and Reporting of Specified Gases	20
4.1 Emissions Source Categories.....	21
4.2 Reporting of Hydrofluorocarbons (HFC), Perfluorocarbons (PFC) and Sulphur hexafluoride (SF ₆).....	26
4.3 Emission Estimation Methodologies	28
5.0 Calculating Emissions, Production and Intensity	32
5.1 Threshold (Total Direct Emissions) Calculation	32
5.2 Calculating Total Annual Emissions	33
5.3 Calculating Total Production	33
5.4 Calculation of Net Emissions Intensity.....	34
5.5 Net Emissions Intensity Limit Calculation	35
5.6 Credit Calculation	35
5.7 Net Emissions Intensity Calculation	36
6.0 Cogeneration	37
6.1 Definitions	37
6.2 Cogeneration Reporting Requirements.....	37
6.3 Greenhouse Gas Emissions from Cogeneration.....	38
6.4 Deemed Greenhouse Gas Emissions for Electricity Generation.....	39
6.5 Net Emissions Intensities.....	39
6.6 Significant Change in Cogeneration Unit Operation	41
6.7 Alberta Environment Cogeneration Policy Review	41
7.0 Data Confidentiality and Access to Information	42
7.1 Request for Confidentiality.....	42
7.2 Access to Annual Compliance Report Information	43

8.0	Verification by Third Party Verifier.....	44
8.1	Peer Review Process	44
8.2	Verification Fundamentals.....	45
8.3	Verification Process	48
8.4	Issues Arising During the Verification	55
8.5	Subsequent Events	55
9.0	Alberta Environment Audit.....	56
9.1	Facility Selection	56
9.2	Audit Process	56
9.3	Audit Methodology.....	57
9.4	Level of Assurance	57
9.5	Audit Report	58
9.6	Continuous Improvement	58
	Completing the Compliance Report	61
	.Instructions	61
	Section A: Administrative Information	61
	Section B: Emissions, Production and Intensity Information.....	65
	Section C: Calculation Methods	69
	Section D: Cogeneration Information.....	70
	Section E: Compliance	72
	Section F: Additional Comments.....	76
	Section G: Third Party Verifier Information	76
	Submission Information	77
	Conflict-of-Interest Checklist	77
	Statement of Qualification.....	78
	Statement of Verification.....	78
	Statement of Certification.....	78
	2008 Emission Performance Credit Request Form.....	79
	References	80

List of Tables

Table 1: New Facility reduction obligation based on the number of years of commercial operation.	8
Table 2: Specified Gases and Gas Species Subject to the Regulation.....	20
Table 3: Summary of Reporting Requirements by Source Category and Specified Gas.	22
Table 4: Relative Accuracy of Emission Estimation Methodologies.....	28
Table 5: Emission Calculation Methods Acceptable to Alberta Environment.....	30
Table 6: Third Party Auditor's Report Template.	53

List of Figures

Figure 1: Compliance Report Process for the Specified Gas Emitters Program.	14
Figure 2: Confidentiality Process for the Specified Gas Emitters Program	42
Figure 3: Process for Requesting Non-Confidential Information Reported Under the Specified Gas Emitters Regulation.	43

Abbreviations

AENV	Alberta Environment
BEI	Baseline Emissions Intensity
CCEMA	Climate Change and Emissions Management Act
CCEMF	Climate Change and Emissions Management Fund
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DUNS	Data Universal Numbering System
EI	Emissions Intensity
EPEA	<i>Environmental Protection and Enhancement Act</i>
EUB	Energy and Utilities Board
ERCB	Energy Resources Conservation Board
GJ	Gigajoule
GWP	Global Warming Potential
h	Hour
HFC	Hydrofluorocarbons
HHV	Higher Heating Value
IP	Industrial Process Emissions
kg	Kilogram
kJ	Kilojoule
kt	Kilotonne
LHV	Lower Heating Value
MWh	Megawatt-hour
N ₂ O	Nitrous Oxide
N/A	Not Applicable
NAICS	North American Industry Classification System
NEI	Net Emissions Intensity
NEIL	Net Emissions Intensity Limit
NGCC	Natural Gas Combined Cycle
NPRI	National Pollutant Release Inventory
P	Production
PFC	Perfluorocarbons
SF ₆	Sulphur Hexafluoride
SGER	Specified Gas Emitters Regulation
SoC	Statement of Certification
SoQ	Statement of Qualification

SoV	Statement of Verification
TDE	Total Direct Emissions
TAE	Total Annual Emissions
t	Tonnes

Related AENV Publications

- Climate Change and Emissions Management Act
- Specified Gas Emitters Regulation
- Specified Gas Reporting Regulation
- Alberta's 2008 Climate Change Strategy
- Technical Guidance for Completing Annual Compliance Reports
- Technical Guidance for Completing Baseline Emissions Intensity Applications
- Additional Guidance for Cogeneration Facilities
- Technical Guidance for Landfill Operators
- Offset Credit Project Guidance Document
- Offset Credit Verification Guidance Document

SGER Forms

- Baseline Emissions Intensity Application for Existing Facility
- Baseline Emissions Intensity Application for New Facility
- Baseline Emissions Intensity Application for Existing Stand-alone Cogeneration Facility
- Baseline Emissions Intensity Application for New Stand-alone Cogeneration Facility
- 2008 Compliance Report Form
- 2008 Compliance Report Form for Stand-Alone Cogeneration Facilities
- Landfill without gas collection
- Landfill with partial gas collection
- Landfill with gas collection

Glossary of Terms

Act means the *Climate Change and Emissions Management Act* (CCEMA)

Baseline Emissions Intensity (BEI) for established facilities is the average of that facility's direct emissions intensity for 2003, 2004 and 2005. For new facilities, the BEI is based on the third year of commercial operation. These definitions are in accordance with Part 4 of the *Specified Gas Emitters Regulation*.

Biomass refers to material derived from living or recently dead organisms. Examples include but are not limited to: wood and wood products, charcoal, agricultural residue, landfill gas and bio-alcohols. A more complete list is available in section 4.1.9 of this document.

Biomass emissions are direct emissions resulting from the decomposition and/or combustion of biomass from plant materials and animal waste

Certifying Official is the person designated by the facility with signing authority for that facility.

Climate Change and Emissions Management Act is the enabling legislation passed in 2002 allowing Alberta Environment to manage greenhouse gas emissions in the province.

Climate Change and Emissions Management Fund is the fund set up under the Climate Change and Emissions Management Act that will be used to support research, development and deployment of transformative change technologies to reduce greenhouse gas emissions in Alberta.

CO₂e is the 100-year global warming potential average of a unit of greenhouse gas (e.g. methane) compared to an equivalent unit of carbon dioxide (reference gas).

Direct emissions means the release of greenhouse gases expressed as tonnes CO₂e from all sources located at a facility.

Director is Alberta Environment's representative appointed under the *Specified Gas Emitters Regulation* and who is charged with implementing the *Regulation*.

Emission offset is a reduction in one or more specified gases (regulated greenhouse gas emissions) occurring at sites not covered by the *Specified Gas Emitters Regulation*. Additional information on Offsets is available at:
<http://environment.alberta.ca/1238.html>.

Emission Performance Credits (EPC) are generated when a facility reduces its Net Emissions Intensity below its Net Emissions Intensity Limit. EPCs are awarded on a tonne CO₂e reduction basis

Established facility is a facility that completed its first year of commercial operation on or before January 1, 2000, or that has completed eight consecutive years of commercial operation.

Facility is any plant, structure or thing that sits on one or more contiguous or adjacent sites that are operated and function in an integrated fashion and includes all buildings, equipment, structures, machinery and vehicles that are an integral part of the activity.

Flaring emissions are direct emissions from the controlled combustion of a gas or liquid stream produced on site for purposes other than producing energy. This includes but is not limited to the incineration of waste petroleum and other hazardous materials, safety flares, and test wells.

Fund Payment is a compliance payment made in to the Climate Change and Emissions Management Fund.

Global Warming Potential (GWP) measures a greenhouse gas's relative warming effect on the earth's atmosphere compared with carbon dioxide and is expressed as a 100-year average. Alberta accepts the International Panel on Climate Change warming potentials for the gases regulated under the *Specified Gas Emitters Regulation*.

HFC Species are hydrofluorocarbon gases and include: CHF₃, CH₂F₂, CH₃F, C₅H₂F₁₀ (structure: CF₃CHFCHFCF₂CF₃), C₂HF₅, C₂H₂F₄ (structure: CHF₂CHF₂), C₂H₂F₄ (structure: CH₂FCF₃), C₂H₃F₃ (structure: CHF₂CH₂F), C₂H₃F₃ (structure: CF₃CH₃), C₂H₄F₂ (structure: CH₃CHF₂), C₃HF₇ (structure: CF₃CHFCF₃), C₃H₂F₆ (structure: CF₃CH₂CF₃) and C₃H₃F₅ (structure: CH₂FCF₂CHF₂). These gases are regulated under the *Specified Gas Emitters Regulation*.

Industrial process emissions are direct emissions from sources directly associated with production that involve chemical or physical reactions, other than combustion, and where the primary purpose of the process is not energy production.

Industrial product use emissions are all direct emissions from the use of HFCs, PFCs or SF₆ associated with production that do not meet the definition of Industrial Process Emissions. Examples include SF₆ and HFC use as a cover gas and SF₆ in on-site electrical equipment..

Net Emissions Intensity (NEI) is the facility's Total Annual Emissions minus true-up options used (Offsets, EPCs, or Fund Contributions) divided by the facility's total annual production expressed in appropriate units.

Net Emissions Intensity Limit (NEIL) is the facility's maximum net emissions intensity permitted under section 4 of the *Specified Gas Emitters Regulation*. This limit is set at 88 per cent of the baseline emissions intensity for existing facilities. New facilities are phased in at a rate of 2 per cent per year starting in their fourth year of commercial operation.

New facility is a facility that completed its first year of commercial operation on or after December 31, 2000 and has completed less than eight years of commercial operation.

On-site transportation emissions are direct emissions resulting from fuel combustion in machinery used for the on-site transportation of products and material including raw, intermediate and end products.

Other fugitive emissions are direct emissions that do not fall under the other emissions categories and includes without limitation, intentional or unintentional releases of gases arising from the production, processing, transmission, storage and use of solid, liquid or gaseous fuels.

Person Responsible is the person legally responsible for the operations of the facility. This person is the approval or registration holder for the facility regulated under the *Environmental Protection and Enhancement Act* or the legal owner of the facility for facilities not subject to EPEA approval.

PFC species are perfluorocarbons gases and include: CF₄, C₂F₆, C₃F₈, C₄F₁₀, c-C₄F₈, C₅F₁₂, and C₆F₁₄. These gases are subject to the *Specified Gas Emitters Regulation*.

Production is the total quantity of end product(s) produced by a facility. If a facility does not have an end product, the Director under the *Specified Gas Emitters Regulation* may specify an input, throughput or other thing as a production metric.

Regulation means the *Specified Gas Emitters Regulation*.

Reporter is the person designated by the facility responsible for completing the facility's Baseline Emissions Intensity Application form.

Specified gases are the six greenhouse gas species—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), PFCs, HFCs, and sulphur hexafluoride (SF₆)—regulated under the *Climate Change and Emissions Management Act* and the *Specified Gas Emitters Regulation*.

Stationary fuel combustion emissions are direct emissions from the combustion of fossil or biomass fuel for the purpose of producing energy excluding CO₂ emissions from the combustion of biomass.

Total Annual Emissions (TAE) are the total direct emissions not including industrial process emissions, CO₂ emissions from combustion of biomass and CO₂ emissions from decomposition of biomass waste emitted by a facility in a calendar year.

Total Direct Emissions (TDE) is the release of all specified gases expressed in tonnes CO₂e from all sources located at a facility.

Third Party Verifier is a professional engineer or chartered account qualified to conduct an independent, third party review of the facility's annual compliance report before it is submitted to Alberta Environment.

Unit of production is an appropriate, common production metric for all end products of a facility consistent with the industry accepted norms for the sector to which the facility belongs.

Formation CO₂ emissions are direct, gaseous emissions of carbon dioxide recovered or recoverable at a well from an underground reservoir including, but not limited to, CO₂ emissions vented from gas sweetening and formation gas.

Venting emissions are direct emissions from the intentional release to the atmosphere of waste gas or liquid streams.

Waste and wastewater emissions means direct emissions from disposal or treatment of waste or wastewater, but does not include CO₂ emissions from decomposition of biomass waste.

Year is calendar year.

1.0 Purpose of this Document

The purpose of this document is to assist regulated facilities under the *Specified Gas Emitters Regulation* in completing the Annual Compliance Report. It also provides information on compliance options available for facilities not able to meet their emissions reduction target.

Compliance reporting is used to compare a facility's annual emission intensity performance against its government-approved net emissions intensity limit. Facilities that are not able to meet their reduction obligation through direct facility improvements can utilize one or more compliance option(s) to meet their net emissions intensity limit. The facility may purchase emissions Offset Credits from an approved Emissions Offset project, use Emissions Performance Credits (EPCs) from another regulated facility that has reduced its emissions below its emissions intensity limit, or make a contribution to the Climate Change and Emissions Management Fund.

Alberta Environment recognizes that facilities' production and/or emissions are not static and that situations may arise that require the facility to restate its baseline emissions intensity. Such situations may include, but are not limited to, detection of errors, improvements in reporting methodology, expansions, and declining production. Facilities wishing to re-establish their baseline emissions intensity should review section 3.2 of the Technical Guidance Document for Completing Baseline Emissions Intensity Applications, and discuss their proposed revisions with Alberta Environment. The Director may also request a revised Baseline Emissions Intensity Application if he/she determines that the established BEI is no longer reflective of the facility's operations.

Facilities that do not meet the regulatory threshold, but that wish to report their greenhouse gas emissions may do so under the *Specified Gas Reporting Program*. More information on this program is available on the Alberta Environment Greenhouse Gas Reporting website at: <http://environment.alberta.ca/2881.html>. These facilities are also eligible to generate Emissions Offsets. More information on Alberta's Offset system is available at: <http://environment.alberta.ca/1238.html>.

1.1 Overview of Changes

The Technical Guidance for Completing Specified Gas Compliance Reports has been up-dated based on the 2007 compliance period. We have provided greater clarity around key issues that came up during the first compliance period. We have also responded to feedback received during the June 10 and 12, 2008 stakeholder sessions, and the November 19 and 20, 2008 program update sessions.

Changes include:

- Providing clarification on the policy intent of the *Specified Gas Emitters Program*;
- Providing clarification on supporting documents that must be submitted when Offset Credits are used as a compliance option;

- Providing clarification on the signing requirements for the Statement of Qualifications, Statement of Verification, and Conflict of Interests;
- Providing examples of industrial process emissions;
- The Vented Raw Gas source category was renamed Formation CO₂ to reflect actual emissions reported in this category;
- The CO₂ Emissions from the Aerobic Decomposition of Waste source category was renamed CO₂ Emissions from Decomposition of Waste to allow reporting of CO₂ emissions from aerobic and anaerobic decomposition of waste in this source category;
- Discuss Alberta Environment's Cogeneration Policy Review and provide guidance for 2008 submissions that include cogeneration; and
- Provide information on Alberta Environment's Specified Gas Emitters program audits.

In some cases, Alberta Environment has initiated policy reviews but has not yet reached a decision. In these cases, facilities must submit using existing guidance. On going- policy review processes include:

- Considering Refinery Activity Index (RAI) as a denominator metric
- Considering Inlet Gas as a denominator metric
- Cogeneration policy review
- Expansion treatment for facilities
- Decommissioning of facilities
- Submission deadline. The submission deadline for the 2008 compliance period is March 31, 2008.

2.0 Overview of the Specified Gas Emitters Program

In 2002, Alberta passed the *Climate Change and Emissions Management Act* signalling its commitment to manage climate change and greenhouse gas emissions in the province. In 2003, Alberta passed the *Specified Gas Reporting Regulation* requiring all facilities emitting over 100,000 tonnes of carbon dioxide equivalent (CO₂e) annually to report their emissions.

In 2007, Alberta passed the *Specified Gas Emitters Regulation* (SGER) reinforcing its commitment to regulate greenhouse gas emissions from large industrial emitters. This regulation (the *Regulation*) requires all facilities in Alberta emitting over 100,000 tonnes of CO₂e per year to reduce their emissions intensity by 12 per cent below their 2003-2005 baseline emissions intensity. New facilities, or those facilities that began operation on or after January 1, 2000 and that have completed less than 8 years of commercial operation, have been given a graduated reduction obligation increasing 2 per cent per year starting in their fourth year of commercial operations up to a reduction obligation of 12 per cent.

Greenhouse gas emissions intensity is regulated on a facility-by-facility basis. That is, targets are set at the facility and that facility's performance over time is compared against its approved baseline emissions intensity. Alberta Environment supports and encourages consistency in reporting methodologies across individual sectors. Where appropriate, sectors are encouraged to develop sector-specific reporting methodologies that improve accuracy and reporting of greenhouse gas emissions for that sector.

The *Regulation* encourages facilities to improve their emissions performance relative to production. This will be achieved through a combination of initiatives including incremental improvements in energy use on site, development of Emission Offset projects, and supporting development and implementation of new emissions reduction technologies.

2.1 Thresholds

The threshold for compliance under the *Specified Gas Emitters Regulation* has been set at 100,000 tonnes of carbon dioxide equivalent (CO₂e) per year for all greenhouse gas emissions from all sources. These total direct emissions (TDE) include emissions from biomass and industrial processes. Facilities that exceed this threshold in any single calendar year on or after 2003 must establish an emissions intensity baseline for the facility and submit annual compliance reports.

The total direct emissions for the facility include all sources of greenhouse gas emissions being emitted at the facility. If the total sum of these emissions including biomass and industrial process emissions exceeds 100,000 tonnes, the facility is required to submit a baseline application to establish an emissions intensity reduction target. The facility must also submit annual compliance reports.

Total annual emissions (TAE) are used to calculate the facilities annual emissions. Biomass and Industrial Process emissions are excluded from the facility's TAE calculations and the facility's annual emissions intensity calculations. More information on calculating the facility's emissions is provided in section 5.0.

2.2 Reduction Obligations

Annual emissions intensity reduction obligation

The *Specified Gas Emitters Regulation* requires all facilities emitting over 100,000 tonnes of CO₂e per year to reduce their annual emissions intensity by 12 per cent below their approved Baseline Emissions Intensity (BEI). This is known as the facility's Net Emissions Intensity Limit (NEIL).

Established facilities are those facilities that completed their first year of commercial operation on or before January 1, 2000, or that have completed eight or more years of commercial operation. Established facilities have a 12 per cent reduction obligation off their BEI.

New facilities are those facilities that completed their first year of commercial operation on or after December 31, 2000 and have completed less than eight years of commercial operation. The BEI for a new facility is established based on the facility's third year of commercial operation. Emission intensity reductions for these facilities will be phased in over a 6-year period at rate of 2 per cent per year beginning in the facility's fourth year of operation.

Net Emissions Intensity Limit for New Facilities		
Start-up	Grace period for initial operations	No target
Year 1	First full calendar year of commercial operation	No target
Year 2	Second year of commercial operation	No target
Year 3	Establish baseline.	Baseline
Year 4	First year reduction obligation	2% target
Year 5	Second year reduction obligation	4 % target
Year 6	Third year reduction obligation	6 % target
Year 7	Fourth year reduction obligation	8 % target
Year 8	Fifth year reduction obligation	10 % target
Year 9	Considered an established facility	12 % target

Table 1: New Facility reduction obligation based on the number of years of commercial operation.

Options to meet emissions intensity reduction targets

Compliance with the NEIL reduction obligation is calculated on a per tonne of carbon dioxide equivalent basis. If a facility is not able to meet its reduction obligation through facility improvements such as technology improvements, changes in maintenance, adding new technologies, etc., the facility may use any one or more of the following three compliance options to achieve compliance:

1. Emissions Performance Credits: use banked Emissions Performance Credits (EPCs) generated in previous compliance periods where the facility beat its emissions reduction target, or obtain EPCs from a different regulated facility that has reduced its emissions below its net emissions intensity limit.
2. Alberta-based Offsets: purchase Emission Offset Credits generated from an Alberta-based offsets project that uses a government-approved protocol.
3. Climate Change and Emissions Management Fund Contribution: Fund contributions are made at a cost of \$15 per tonne of CO₂e to a maximum of the facility's compliance obligations

If a facility's annual emission intensity is over its NEIL, the facility must obtain sufficient credits such that the effective CO₂e emissions for the facility equal its intensity limit. The facility may purchase valid Offset Credits, Emissions Performance Credits or make a contribution to the Climate Change and Emissions Management Fund.

If a facility reduced its emissions intensity below its NEIL, the facility is eligible for Emission Performance Credits (EPC). These credits can be banked for future use, or traded/sold to other Alberta facilities that have not met their emissions reduction target. EPC credits must be serialized through Alberta Environment before they can be used as a compliance option. More information on these compliance options is available in section 3.2.

3.0 Overview of the Compliance Report Process

Facilities that have tripped the regulatory threshold must submit annual compliance reports until such time as the facility is decommissioned and is no longer considered a facility under the *Regulation*. Decommissioning is discussed in more detail in section 3.3.2 of the Technical Guidance for Completing Baseline Emissions Intensity Applications.

Annual compliance reporting tracks facility performance over time relative to the facility's established baseline emissions intensity. The baseline must be reflective of the facility's operations, and consistent reporting methodology must be used between baseline and compliance reporting periods. If a change in operation occurs at the facility that results in a significant change in emissions, production, intensity, or combination thereof, or if the facility adds a new emissions or production source, the Certifying Official must contact Alberta Environment to discuss the situation and determine whether a corresponding change to the facility's baseline or compliance reporting is required. Further guidance on re-establishing baselines is given in section 3.3 of the Technical Guidance Document for Completing Baseline Emissions Intensity Applications.

3.1 Process for Submitting an Annual Compliance Report

The Following is a guide to assist the Reporter for the facility in completing the 2008 Compliance Report form. More detailed, sheet-by-sheet instructions are available in Appendix A.

1. Determine the appropriate reporting form for the facility.
 - Facilities without cogeneration must complete the 2008 Compliance Report for Regular Facilities. Section D of the Compliance Report must be marked N/A indicating no cogeneration is present at the facility.
 - Facilities with integrated cogeneration must complete the 2008 Compliance Report for Regular Facilities and complete Section D of the report.
 - Facilities that are deemed stand-alone cogeneration must complete the 2008 Compliance Report for Stand-alone Cogeneration.
2. Facilities must meet the 2008 Net Emissions Intensity Limit through improvements to the facility, the purchase of Offset Credits and/or Emissions Performance Credits, or through a contribution to the *Climate Change and Emissions Management Fund*. Fund contributions are set at \$15 per tonne of CO₂e and may not exceed the total true-up obligation for the facility.
3. If reporting of the full year 2006 and 2007 emissions were deferred to the 2008 compliance report period, these emissions must be verified and submitted along with the 2008 annual compliance report. Submission of 2006 and 2007 data is required under the *Specified Gas Emitters Regulation*. This information is being collected for continuity between baseline years and the first compliance period,

and will be used to up-date Alberta's *Specified Gas Reporting* submissions.

The submission deadline for the 2008 Specified Gas Compliance Report is March 31, 2009. Alberta Environment recognizes the time constraints imposed by this deadline and is working to adjust the submission deadline. Any changes in the reporting deadline will apply for the 2009 Specified Gas Compliance Report.

-
4. Submit the following completed documents to Alberta Environment by March 31, 2009:
- Third Party verified 2008 Specified Gas Compliance Report (electronic)
 - If applicable, Third Party Verified full year 2006 and 2007 emissions data
 - Third Party Verifier's Report (electronic)
 - The signed **Original** Conflict-of-Interest Checklist,
 - The signed **Original** Statement of Certification form,
 - The signed **Original** Statement of Qualification form,
 - The signed **Original** Statement of Verification form,
 - If applicable, 2008 Emissions Performance Request form
 - Applicable supporting documentation for compliance true up
 - If using Emissions Performance Credits,
 - a copy of the EPC serial numbers for tonnes being used for compliance
 - If using Offset Credits,
 - a copy of the confirmation of initiation of retirement for Offset credits generated by the Alberta Offset Registry,
 - Offset Verification Report and Project Plan (both electronic and hard copy)
 - Copy of the Offset Credit GHG Assertion
 - Signed **original** Statement of Verification
 - Signed **original** Statement of Qualifications, and
 - Signed **original** Conflict of Interest.
 - If using Fund contributions,
 - a copy of the Fund Contribution Purchase Receipt will be automatically forward to Alberta Environment,
 - If required, a Confidentiality Request letter.

Facilities submitting Offset Credits or EPCs purchased from another facility must make available the records of the transfer of ownership of the Credits from the Offset/EPC Producer to the Facility submitting the Offsets for compliance to the Third Party Verifier for verification, and to Alberta Environment if requested.

Alberta Environment encourages the Reporter to include additional supporting documents including detailed emissions calculations, supporting data, emissions calculation methodologies, etc. with their application. Sufficient information should be supplied to allow Alberta Environment to understand the annual compliance report. Alberta Environment may request additional information if

needed to determine completeness. Providing sufficient supporting materials and details initially can reduce processing time required to review the facility's submission.

All compliance reports must be third party verified to ensure accuracy of the submission. More information on verification is available in section 8.0 of this guidance document.

Electronic signatures are not permissible under the Specified Gas Emitters program.

The Regulation also requires the Third Party Verifier to be an individual. If a company wishes to sign on behalf of the Corporation, sign-off may be done as:

**Company Name
Per [Corporate Binding Official]**

All documents listed above must be submitted to Alberta Environment with original signatures from a designated authority or the submission may be deemed incomplete.

For administrative purposes, e-mail submissions sent to AENV.GHG@gov.ab.ca must be for a single facility.

Submissions sent by courier (CD/DVD) may contain applications for one or more facilities; however, each facility application must be clearly identified for accurate tracking and filing by Alberta Environment. CD/DVDs and hardcopies of supporting documents must be submitted to:

Director
Alberta Environment
12th Floor, 10025 – 106 Street
Edmonton, Alberta
T5J 1G4

An e-mail confirming receipt of the 2008 Specified Gas Compliance Report will be sent to the Reporter and Certifying Official upon receipt of the 2008 Compliance Report package.

If the facility is requesting confidentiality for part of its compliance submission, the request, along with justification and supporting documentation, must be submitted by mail or courier to Alberta Environment no later than March 31, 2009 for the 2008 Compliance Report submission deadline. The Director will issue a decision in writing within 150 days of the receipt of the Request for Confidentiality.

5. Alberta Environment will perform a compliance check on the submitted documents. Alberta Environment may request additional information for clarification.
6. The Director will notify the facility in writing if:
- the facility is compliant with the Net Emissions Intensity Limit; or
 - corrective action is required for the facility to achieve compliance under the *Regulation*.

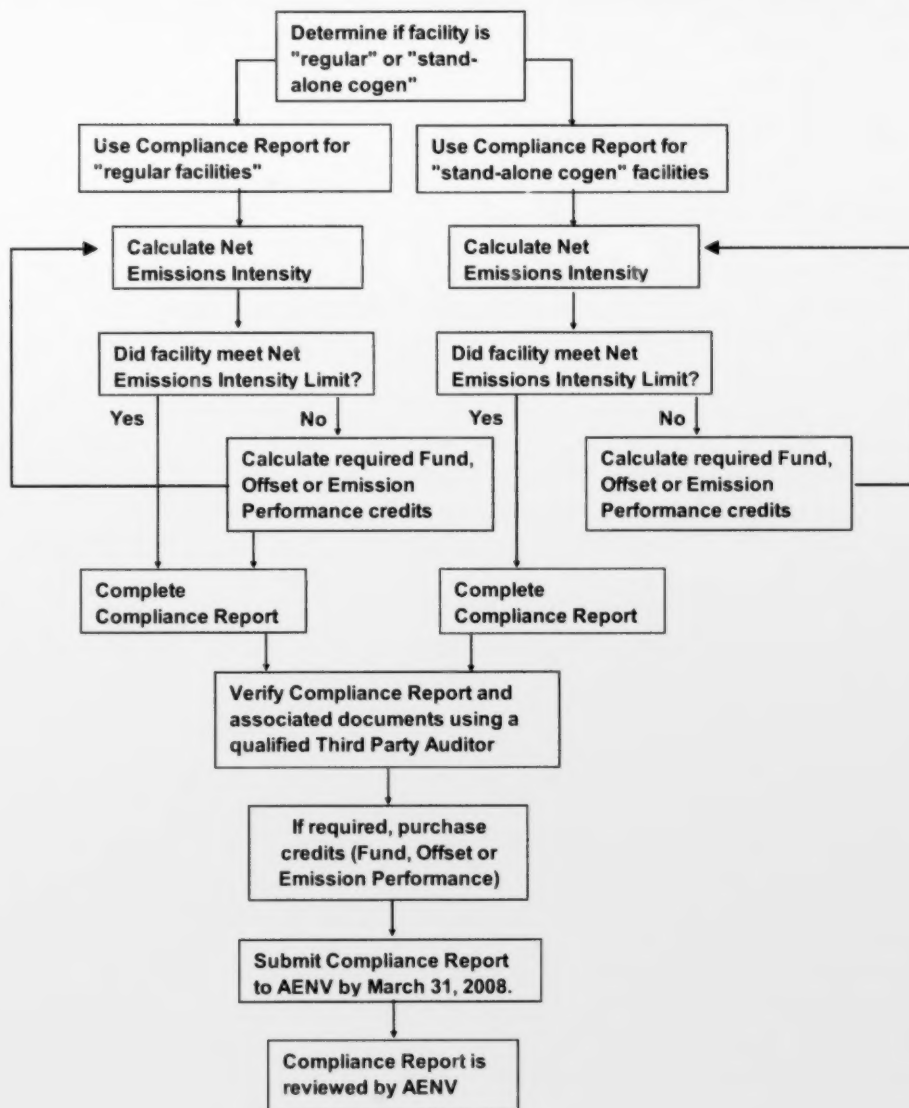


Figure 1: Compliance Report Process for the Specified Gas Emitters Program.

3.2 Compliance Options

Facilities have several options for achieving compliance with their 2008 Net Emissions Intensity Limit (NEIL). Improvements can be made to the operation/efficiency of the facility. Facilities that do not meet their NEIL through facility improvements may purchase Offset Credits from Alberta Offsets Registry or Emission Performance Credits (EPCs) from a regulated facility that reduced its emissions intensity below its NEIL. Facilities may also make contributions to the *Climate Change and Emissions Management Fund*.

3.2.1 Facility Improvements

Facilities are encouraged to institute improvements to their operations to reduce emissions per unit of production at the facility. If a facility reduces its greenhouse gas emissions relative to the amount of end product being produced, the facility will see its total annual emissions intensity decrease. This may help the facility meet its NEIL. If the facility is able to reduce its emissions below its NEIL, it may also generate Emission Performance Credits (EPCs). Examples of facility improvements are discussed below:

Example 1: Technology Improvements

Technology improvements can include adapting new technologies that increase energy efficiency, retrofitting existing equipment, adapting more efficient practices, etc to improve a facility's performance. Becoming more efficient will help a facility meet its reduction target, and will can make the facility more competitive and productive over the long term.

Technology improvements can also be made to reduce the quantity of greenhouse gas emissions that are actually released to the atmosphere.

Example 2: Maintenance

Maintenance procedures can be implemented to reduce greenhouse gas emissions. Fugitive emissions can be fairly significant for some industrial operations. Fixing leaks and replacing old equipment may help facilities to meet their target intensities and will help make the facility more efficient.

Example 3: Fuel Switching

The type of fuel used in combustion activities at a facility can affect the amount of greenhouse gas emissions resulting from the activity. Switching to a fuel that emits a smaller quantity of greenhouse gas per unit of energy produced can help a facility meet its reduction obligation.

Biomass combustion is a potential fuel option. IPCC guidelines state that CO₂ emissions from the combustion of biomass materials are sustainably produced. Accordingly, under Alberta's *Specified Gas Emitters Program*, CO₂ emissions from the combustion of

biomass are excluded from the facility's total annual emissions. Facilities switching to biomass fuel will decrease their emissions intensity because they will only report on methane (CH₄) and nitrous oxide (N₂O) emissions associated with biomass fuel as opposed to reporting on the CO₂, CH₄ and N₂O emissions associated with non-biomass fuel.

3.3 Emissions Performance Credits

A facility may use Emissions Performance Credits (EPCs) to meet its reduction obligation. An EPC is a reduction in the release of specified gases expressed in tonnes of CO₂e that occurs at a facility that has reduced its emissions intensity below its NEIL. Once created, these credits may be banked for use in future compliance cycles or sold to other regulated facilities that have not met their reduction obligations.

Emissions Performance Credits:

- Must be generated before they can be used;
- Can be held jointly (through a business arrangement) by two or more facilities, but may only be used once for compliance purposes;
- Can be generated by one facility and then be used by another facility to help meet its reduction obligation;
- Can be banked and used in subsequent years or traded between facilities owned by the same company;
- Can be sold to another regulated facility that has not met its reduction obligation;
- Must be owned by the facility who is submitting it for compliance;
- Remain active until used for compliance purposes.

Emissions Performance Credits can only be used once and **may not** be submitted for compliance in the year in which they were generated. For example, credits generated in 2008 will be reviewed and serialized with the 2008 compliance report. These credits will be eligible as a true-up option starting in the 2009 compliance period. All serialized EPCs remain valid until they are submitted for compliance. Credits used as a compliance option expire upon use.

Alberta Environment will review Emissions Performance Credit applications. Once it has been determined that the Credits meet the requirements under the *Regulation*, the Director will notify the company in writing that the EPCs have been approved and provide the facility with the serialization numbers for the Credits.

A request for serialization of EPCs must be submitted with the facility's annual compliance report. The number of EPCs the facility is entitled to will be calculated automatically in the "Emission Performance Credit Request Form" of the compliance report.

Emission Performance Credits are revocable licenses authorizing the Person Responsible to use the quantity of specified gas reductions from Emission Performance Credits to meet the Net Emissions Intensity Limit.

Emissions Performance Credits may be denied or revoked if Alberta Environment determines the action taken to generate the EPCs was not in accordance with the *Specified Gas Emitters Regulation*.

Alberta Environment does not guarantee the availability of Offset Credits or Emission Performance Credits.

3.4 Offsets

A facility may use Offset Credits to meet its reduction obligation. Emissions Offset Credits are defined as a reduction in the release of specified gases expressed in tonnes of CO₂e that meets the requirements of section 7(1) of the *Specified Gas Emitters Regulation*, but do not include Emission Performance Credits. Emission Offsets must meet the following criteria to be considered valid emissions reductions under the *Regulation*:

- Occur in Alberta;
- Be developed in accordance with a government-approved Offset Project Protocol;
- Be from an action taken that is not otherwise required by law at the time the action is initiated;
- Result from actions taken on or after January 1, 2002, and occur on or after January 1, 2002;
- Be real and demonstrable;
- Be quantifiable and measurable, either directly or by accurate estimation using replicable techniques.
- Be owned by the facility submitting them for compliance purposes. If jointly held, apportionment of the credits must be established such that credits are only submitted once for compliance.

Offset projects must be done in accordance with government-approved offset protocols. Offset projects must be third party verified and be registered with the Alberta Offset Registry (the Registry) administered by Carbon Offset Solutions. All tonnes of reductions must be verified before they can be sold within the Registry. Offset credits **must** be retired once they are submitted for compliance.

Note: Offset Credits may only be used once and expire upon submission as a compliance option.

The procedure outlined below provides guidance for persons wishing to purchase and submit Offset Credits:

1. Calculate number of Offset Credits needed. Offset credits are calculated based on the tonnes of CO₂e needed to achieve compliance. Offset Credits may be used for part or all of the facility's reduction obligation.
2. Find one or more offset projects with available credits for purchase (Alberta Offset Registry: <http://www.carbonoffsetsolutions.ca/offsetregistry.html>).
3. Ensure that the offset project meets the requirements for an offset project and Offset Credit.
4. Purchase the Offset Credits.
5. Submit a request for retirement of Credits being used for compliance. The Offset Credit Retirement Receipt must be included in the facility's compliance report submission.
6. Enter the Offset Credit serial numbers (or range of numbers) used for true-up in section E3 of the Compliance Report.
7. Submit a copy of:
 - Offset Credit Purchase Receipt(s) generated by the Alberta Offset Registry;
 - Offset Credit Retirement Receipt(s) generated by the Alberta Offset Registry;
 - Offset Project Third Party Verification Report;
 - Offset Project Plan;
 - An **original** signed offset Credit GHG Assertion and Statement of Verification;
 - An **original** signed Statement of Qualifications; and
 - An **original** signed Conflict of Interest

Offset Credits are revocable licenses authorizing the Person Responsible to use the quantity of specified gas reductions from Offset Credits to meet the Net Emissions Intensity Limit. Examples of reasons for revoking an Offset Credit may include:

- inappropriate application of a project baseline;
- inappropriate application of the Offset Protocol; and
- double-counting of an Offset Credit.

Alberta Environment does not guarantee the availability of Offset Credits or Emission Performance Credits.

3.4.1 Additional Information on Offsets

Specific guidance on the development of offset credit projects can be found in the *Offset Credit Project Guidance Document*, available at:

http://www3.gov.ab.ca/env/climate/docs/Guidance_Document_Alberta_Offsets.pdf

Specific guidance on the verification of offset credit projects can be found in the *Offset Credit Verification Guidance Document*, which is available at:

http://www3.gov.ab.ca/env/climate/docs/Verification_Document_Alberta_Offsets.pdf

Various offset credit project quantification protocols approved by Alberta Environment are available from:

<http://www.environment.alberta.ca/1238.html>

Additional information on the Alberta Offset System is available from:

<http://www.carbonoffsetsolutions.ca/policyandregulation/abOffsetSystem.html>

3.5 Climate Change and Emissions Management Fund

A facility may achieve compliance with its emissions reduction obligation by contributing to the *Climate Change and Emissions Management Fund* (the Fund). The Fund permits a facility that cannot meet its NEIL to make contributions to the Fund at a cost of \$15 per tonne of CO₂e reduction unit being purchased.

Contributions to the Fund must be made to the **Minister of Finance, Financial Services Branch, Alberta Environment** no later than March 31, 2009. Contributions made after the March 31 deadline will apply to the facility's 2009 compliance obligation.

Fund Contributions made without appropriate, supporting paperwork (Form E2 of the Compliance Report Form) cannot be processed and will not be accepted for compliance purposes.

The procedure below provides guidance on using Fund Contributions as a compliance option:

1. Calculate number of tonnes of CO₂e needed to achieve compliance. Contribution to the Fund may be used for part or all of the facility's true-up obligation.
2. Calculate the total value of the Fund contribution at a cost of \$15 per tonne CO₂e owed.
3. Write a check for the appropriate amount, payable to "**Minister of Finance**".
4. Submit payment and Compliance Report worksheet E2 (Fund Payment) to:

**Minister of Finance
Financial Services Branch
Alberta Environment
6th floor, South Petroleum Plaza
9915 - 108 Street
Edmonton, Alberta
T5K 2G8**

5. Fund Contribution Purchase Receipts will be issued within 10 working days.
6. Financial Services Branch will forward a copy of the stamped Fund Contribution Purchase Receipt to the Director. This will be added to the facility's file.

Companies may make Fund Contributions for one or more regulated facilities owned by the same company at same time by submitting a cheque for the total number of CO₂e equivalent units required. Completed fund contribution worksheets (Compliance Report worksheet E2) for each facility included in the total payment must be submitted with the cheque. Each fund contribution worksheet will be stamped with a Fund Contribution Receipt Number that will function as a Fund Contribution Purchase Receipt.

Note: At present, it is not possible for Alberta Environment to reconcile overpayment in to the Fund. Facilities should check to ensure their compliance submission is correct and that they are purchasing the correct number of Fund Units before they submit their Fund payment.

Alberta Environment is reviewing its reconciliation policy and will try to correct this issue for future compliance cycles.

4.0 Estimation and Reporting of Specified Gases

The *Specified Gas Emitters Regulation* applies to any facility that releases 100,000 tonnes or more of CO₂e based on the sum of direct emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulphur hexafluoride (SF₆). Table 2 provides a list of the specified gases subject to the *Regulation* including their 100-year global warming potential used to calculate CO₂e emissions.

Specified Gas	Formula	100-year GWP
Carbon dioxide	CO ₂	1
Methane	CH ₄	21
Nitrous Oxide	N ₂ O	310
Sulphur Hexafluoride	SF ₆	23900
Perfluorocarbons (PFC)		
Perfluoromethane	CF ₄	6500
Perfluoroethane	C ₂ F ₆	9200
Perfluoropropane	C ₃ F ₈	7000
Perfluorobutane	C ₄ F ₁₀	7000
Perfluorocyclobutane	c-C ₄ F ₈	8700
Perfluoropentane	C ₅ F ₁₂	7500
Perfluorohexane	C ₆ F ₁₄	7400
Hydrofluorocarbons (HFC)		
HFC-23	CHF ₃	11700
HFC-32	CH ₂ F ₂	650
HFC-41	CH ₃ F	150
HFC-43-10mee	C ₅ H ₂ F ₁₀ (structure: CF ₃ CHFCHFCF ₂ CF ₃)	1300
HFC-125	C ₂ HF ₅	2800
HFC-134	C ₂ H ₂ F ₄ (structure: CHF ₂ CHF ₂)	1000
HFC-134a	C ₂ H ₂ F ₄ (structure: CH ₂ FCF ₃)	1300
HFC-143	C ₂ H ₃ F ₃ (structure: CHF ₂ CH ₂ F)	300
HFC-143a	C ₂ H ₃ F ₃ (structure: CF ₃ CH ₃)	3800
HFC-152a	C ₂ H ₄ F ₂ (structure: CH ₃ CHF ₂)	140
HFC-227ea	C ₃ HF ₇ (structure: CF ₃ CHFCF ₃)	2900
HFC-236fa	C ₃ H ₂ F ₆ (structure: CF ₃ CH ₂ CF ₃)	6300
HFC-245ca	C ₃ H ₃ F ₅ (structure: CH ₂ FCF ₂ CHF ₂)	560

Table 2: Specified Gases and Gas Species Subject to the Regulation.

4.1 Emissions Source Categories

Source categories have been established to facilitate reporting of greenhouse gas emissions in all categories and the treatment of excluded emissions from certain categories. Details on the treatment of emissions from each category are provided in sections 4.1.1 through 4.1.10 below.

Emissions of CO₂, CH₄, and N₂O, must be disaggregated and reported according to the following source categories:

- Stationary Fuel Combustion
- Industrial Process
- Venting
- Flaring
- Other Fugitive
- On-site Transportation
- Waste and Wastewater
- Formation CO₂
- CO₂ Emissions from the Combustion of Biomass
- CO₂ Emissions from the Decomposition of Biomass

Emissions of HFC, PFC, and SF₆ must be disaggregated and reported according to the following source categories:

- Industrial Process
- Industrial Product (release of emissions that do not qualify as Industrial process)

Table 3 provides a general overview of emissions reporting per source category. Some emissions sources are included in calculating the facility's threshold emissions, but are not included in the facility's baseline emissions calculations as described below.

Source Category	Specified Gas	Reported	Total Direct Emissions (TDE)	Total Annual Emissions (TAE)
Stationary Fuel Combustion (Includes CH ₄ and N ₂ O emissions from the combustion of biomass)	CO ₂ , CH ₄ , N ₂ O	✓	✓	✓
Industrial Process	All*	✓	✓	✗
Venting (Does not include Formation CO ₂)	CO ₂ , CH ₄ , N ₂ O	✓	✓	✓
Flaring (Does not include flaring of landfill gas)	CO ₂ , CH ₄ , N ₂ O	✓	✓	✓
Other Fugitive	CO ₂ , CH ₄ , N ₂ O	✓	✓	✓
Formation CO₂	CO ₂	✓	✓	✓
Waste and Wastewater (Includes emissions from incineration of non-biomass waste and CH ₄ & N ₂ O emissions from decomposition of waste)	CO ₂ , CH ₄ , N ₂ O	✓	✓	✓

and CH ₄ & N ₂ O emissions from flaring of landfill gas)				
On-site Transportation	CO ₂ , CH ₄ , N ₂ O	✓	✓	✓
CO₂ Emissions from the Combustion of Biomass (Includes CO ₂ emissions from combustion of biomass, incineration of waste biomass and flaring of landfill gas)	CO ₂	✓	✓	x
CO₂ Emissions from the Decomposition of Biomass	CO ₂	✓	✓	x

Table 3: Summary of Reporting Requirements by Source Category and Specified Gas.

4.1.1 Stationary Fuel Combustion

Stationary fuel combustion emissions are direct emissions resulting from non-vehicular combustion of fossil or biomass fuel (CO₂ emissions from biomass combustion are exempt but NO₂ and CH₄ emissions must be reported) at the facility for the purpose of energy production (i.e. to generate electricity, heat or steam). These emissions are a common source of greenhouse gas emissions and are produced in most industrial sectors. The stationary fuel combustion source category includes on-site waste incineration if the waste is combusted for the purpose of energy production. Emissions from waste incineration when used as a disposal method must be included in the Waste and Wastewater source category.

CO₂ emissions from the combustion of biomass must be reported in a separate source category (CO₂ Emissions from the Combustion of Biomass) and included in the calculation of the emissions threshold (TDE), but are not included in the calculation of total annual emissions (TAE) for the facility. N₂O and CH₄ emissions from biomass combustion must be reported in the Stationary Fuel Combustion source category and included in the TAE.

4.1.2 Industrial Process

Industrial process emissions are direct emissions from an industrial process involving chemical or physical reactions, other than combustion, and where the primary purpose of the industrial process is not energy production. This includes mineral, metal and chemical production. This source category is sector-specific and is not found in all industrial sectors.

Where industrial process emissions are produced in combination with emissions from fuel combustion for energy purposes, the emissions must be included in the source category for the primary purpose of the activity. For example, if the primary purpose of the activity is the generation of energy, then the emissions must be included in the Stationary Fuel Combustion source category.

Industrial Process emissions are included in the facility's threshold emissions calculation, but are excluded from the facility's total annual emissions calculation. Alberta Environment is reviewing the treatment of Industrial Process emissions. These emissions may be assigned a zero (0) per cent reduction obligation starting in the 2009 compliance period.

The following list contains examples of Industrial Process emissions that have been approved by Alberta Environment:

- CO₂ from steam methane reforming for various uses including ammonia production
 - $\text{CH}_4 + 2\text{H}_2\text{O} \rightarrow 4\text{H}_2 + \text{CO}_2$
- CO₂ calcination of lime stone for clinker production and quick lime production
 - $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
- CO₂ liberated from phosphate bearing rock exposed to acids during phosphoric acid production
- Entrained CO₂ from ethylene facility feedstock
- N₂O from nitric acid combuster

If a facility is unclear whether an emissions source is classified as industrial process, they must discuss it with Alberta Environment before submitting their compliance report.

4.1.3 Venting

Vented emissions are direct emissions from intentional releases to the atmosphere of a waste gas or liquid stream and including, but not limited to: emissions of casing gas, treater, stabilizer, dehydrator off-gas, blanket gas and emissions from pneumatic devices, which use natural gas as a driver, compressor start-up, pipeline and other blowdowns and metering and regulation station control loops. Formation CO₂ emissions are not included in this source category.

4.1.4 Flaring

Flaring emissions are direct emissions from the controlled combustion of a gas or liquid stream produced on site, but not for the purpose of energy production and including without limitation emissions arising from waste petroleum incineration, hazardous emissions prevention systems (whether in pilot or active mode), well testing, natural gas gathering systems, processing plant operations, crude oil production, pipeline operations, petroleum refining and chemical fertilizer and steel production.

CO₂ emissions from the combustion of landfill gas are not included in flaring emissions, but are included in the CO₂ Emissions from the Combustion of Biomass source category. CH₄ and N₂O emissions from the combustion of landfill gas must be reported in the Waste and Wastewater source category.

4.1.5 Other Fugitive

Other fugitive emissions are direct emissions that do not fall under stationary fuel combustion emissions, industrial process emissions, venting emissions, flaring emissions, on-site transportation emissions, waste and wastewater emissions, formation CO₂ emissions, CO₂ emissions from the combustion of biomass or CO₂ emissions from decomposition of biomass and including without limitation intentional or unintentional releases of gases arising from the production, processing, transmission, storage and use of solid, liquid or gaseous fuels.

In general, emissions from other fugitive sources are a result of the handling or processing of various types of fuel in the fossil fuel industry. Other fugitive sources could include leaks from natural gas transmission lines and processing plants, accidental releases from oil and gas wells and releases from the mining and handling of coal.

4.1.6 Formation CO₂

This source category was previously called Vented Raw Gas. It was renamed to better reflect the emissions sources reported in this source category.

Formation CO₂ emissions are direct emissions of carbon dioxide that is recoverable or is recoverable at a well from an underground reservoir and that is gaseous at conditions under which its volume is measured or estimated. This source category includes, but is not limited to, CO₂ emissions vented from gas sweetening and formation gas.

4.1.7 Waste and Wastewater

Waste and wastewater emissions are direct emissions from on-site waste disposal and waste or wastewater treatment and may include without limitation sources of emissions from on-site waste disposal and waste or wastewater treatment at a facility such as landfilling of solid waste, flaring of landfill gas, treatment of liquid waste and waste incineration.

Emissions resulting from waste to energy operations where waste materials are used directly as a fuel or converted to fuel must be included in the Stationary Fuel Combustion source category. CO₂ emissions from the combustion of biomass must be reported in the CO₂ Emissions from the Combustion of Biomass source category as described in section 4.1.1 and section 4.1.9 while CO₂ emissions from the decomposition of biomass must be reported in the CO₂ Emissions from the Decomposition of Biomass source category as described in section 4.1.10.

Carbon dioxide emissions from flaring of landfill gas must be reported in the CO₂ Emissions from the Combustion of Biomass source category as landfill gas is considered a biomass emission. These emissions are included in the emissions threshold calculation, but not included in the calculation of the total annual emissions (TAE) for the facility. CH₄ and N₂O emissions from flaring of landfill gas must be reported in the Waste and

Wastewater source category and included in the emissions threshold calculation and the TAE for the facility.

4.1.8 On-site Transportation

On-site transportation emissions are direct emissions resulting from fuel combustion in machinery used for the on-site transportation of products and materials integral to the production process. Examples of on-site transportation include the transportation of raw or intermediate products and materials within the production process such as equipment used at an oil sands operation to mine and/or move materials to subsequent on-site processing; equipment used at above or below ground mining operations to mine and/or move mined materials; equipment used to transport intermediate products or materials to different on-site production processes; and transportation of production bi-products such as mining overburden or tailings.

On-site vehicle emissions associated with emergency vehicles, staff transportation, or maintenance are not included in the facility's total direct emissions or total annual emissions calculations.

4.1.9 CO₂ Emissions from Biomass Combustion

Carbon dioxide emissions from the combustion of biomass are direct emissions from the combustion of plant materials, animal waste or any product made of either of these and includes without limitation, wood and wood products; charcoal; agricultural residues and wastes including organic material above and below ground, both living and dead such as trees, crops, grasses, tree litter, roots, municipal and industrial wastes where the organic material is biological in origin; landfill gas; bio-alcohols; black liquor; sludge gas; and animal or plant-derived oils.

Carbon dioxide emissions from the combustion of biomass including waste incineration must be calculated and included in the calculation of the emissions threshold (total direct emissions), but not included in the calculation of the total annual emissions for the facility. Methane and N₂O emissions from the combustion of biomass must be reported in the Stationary Fuel Combustion source category and included in both the calculation of the emissions threshold and the total annual emissions for the facility.

The carbon dioxide emissions from waste incineration of fossil fuel-based (non-biomass) materials must be reported in the Waste and Wastewater source category and included in both the emissions threshold and total annual emissions calculations for the facility.

Carbon dioxide emissions from flaring of landfill gas must be reported in the CO₂ Emissions from the Combustion of Biomass source category as landfill gas is considered a biomass material. Landfill gas flaring emissions are included in the emissions threshold, but not included in the calculation of the total annual emissions for the facility. However, the CH₄ and N₂O emissions from flaring of landfill gas must be included in the Waste and Wastewater source category, included in the emissions threshold calculation, and included in the total annual emissions for the facility.

4.1.10 CO₂ Emissions from Decomposition of Biomass

This source category was previously called CO₂ Emissions for Anaerobic Decomposition of Waste. The name was changed to better reflect the emissions sources reported in this source category.

Carbon dioxide emissions resulting from the aerobic decomposition of biomass materials in waste must be reported and included in the emissions threshold calculation, but not included in the total annual emissions for the facility. Methane and N₂O emissions from waste decomposition must be reported in the Waste and Wastewater source category and included in the emissions threshold and the total annual emissions calculations for the facility.

4.2 Reporting of Hydrofluorocarbons (HFC), Perfluorocarbons (PFC) and Sulphur hexafluoride (SF₆)

Hydrofluorocarbon (HFCs), perfluorocarbon (PFCs), and sulphur hexafluoride (SF₆) emissions occur in small volumes relative to the principle specified gases—carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O)—but have high global warming potentials. As such, Alberta Environment requires all sources of HFCs, PFCs, and SF₆ associated with facility production operations to be calculated and reported in the facility's threshold calculation and baseline emissions calculations.

Hydrofluorocarbon, PFC, and SF₆ emissions associated with emergency equipment and such sources as office fridges and building air conditioning are directly related to production and therefore, are excluded from threshold and baseline emissions calculations.

Hydrofluorocarbon and PFC emissions must be reported for individual gas species (see table 4 for species) while sulphur hexafluoride (SF₆) emissions are reported as total emissions released by the facility. Emissions from industrial process sources should not be included in the total annual emissions as these emissions are excluded under the *Regulation* and are not reported

4.2.1 Hydrofluorocarbon (HFC)

Hydrofluorocarbons are a family of synthetic gases that contain carbon, hydrogen and fluorine. Although emissions of hydrofluorocarbons are usually very small, species of HFC often have very large global warming potentials, ranging from 140 to 11700 (see Table 2). HFC emissions from applications such as refrigeration, air conditioning, aerosol propellants, fire extinguishers, some solvents, etc. are not directly associated with production and therefore, are not required to be reported under the *Regulation*.

Sources of HFC emissions from industrial processes are direct emissions from an industrial process involving chemical or physical reactions, other than combustion, and where the primary purpose of the industrial process is not energy production. Industrial Process emissions are included in the facility's total direct emissions calculation for

comparison to the emissions threshold, but are excluded from the facility's total annual emissions calculation.

Sources of HFC emissions from industrial product use are all emissions associated with production that do not meet the industrial process definition. These include without limitation emissions from foam blowing and the use of HFC as a cover gas in metal production. These emissions are included in both the total direct and total annual emissions calculations.

4.2.2 Perfluorocarbon (PFC)

Perfluorocarbons are a family of industrial gases. Although emissions of PFC are usually very small, species of PFC have significant global warming potentials ranging from 6500 to 9200 (see Table 2). Perfluorocarbons emissions from applications such as refrigeration, air conditioning, semiconductor manufacturing, aerosol propellants, fire extinguishers, some solvents, etc. are not directly associated with production and therefore, must not be reported under the *Regulation*.

Sources of PFC emissions from industrial processes are direct emissions from an industrial process involving chemical or physical reactions, other than combustion, and where the primary purpose of the industrial process is not energy production. Industrial Process emissions are included in the facility's total direct emissions calculation for comparison to the emissions threshold, but are excluded from the facility's total annual emissions calculation.

Sources of PFC emissions from industrial product use are all emissions associated with production that do not meet the industrial process definition. These include without limitation emissions from aluminum production and foam blowing. These emissions are included in both the total direct and total annual emissions calculations.

4.2.3 Sulphur Hexafluoride (SF₆)

Sulphur hexafluoride is a synthetic gas that is relatively inert due to its specific chemical properties. Emissions of SF₆ are usually small; however, this gas has a significant global warming potential of 23,900. Emissions must be reported and included in the baseline and compliance report emissions calculations for the facility. Sulphur Hexafluoride emissions from applications such as fire suppression, explosion protection, leak detection and electronic applications are not directly associated with production and therefore, must not be reported under the *Regulation*.

Sources of SF₆ from industrial processes are direct emissions from an industrial process involving chemical or physical reactions, other than combustion, and where the primary purpose of the industrial process is not energy production. Industrial Process emissions are included in the facility's total direct emissions calculation for comparison to the emissions threshold, but are excluded from the facility's total annual emissions calculation.

Sources of SF₆ emissions from industrial product use are all emissions associated with production that do not meet the industrial process definition. These include without limitation emissions from SF₆ being used as a cover gas in magnesium smelting and casting, as foundry products in the aluminum industry, and as an insulating gas in electrical equipment such as circuit breakers and on-site power stations. These emissions are included in both the total direct and total annual emissions calculations.

4.3 Emission Estimation Methodologies

There are several measurement and calculation options available for the different categories of emission sources. Each has an associated level of accuracy with the measured parameter data (e.g., fuel consumption) and the calculation method (e.g., mole balance). Where possible, Alberta Environment recommends the use of data of highest accuracy available (see Table 4 below) and should not fall below either extrapolation from historical data, or generic emissions factors respectively. Emphasis should be placed on the largest sources of greenhouse gas emissions.


Measured Data	Accuracy*	Calculation
Monitoring or direct measurement		Mole balance with efficiency factors
Intermittent (periodic) direct measurement		Equipment-specific emission factors
Calculated based on measured surrogate parameters		Manufacturer's emission factors
Extrapolated from historical data		Models based on surrogate parameters
Estimated from design requirements		Generic emission factors
Estimated from agreements	Least	Top-down emission factors

Table 4: Relative Accuracy of Emission Estimation Methodologies.

* Alberta Environment does not support measured data or emissions calculations that fall below the black line for the respective categories unless it can be demonstrated that this level of accuracy will not materially affect the facility's submission.

The following is a description of the six measured data categories in decreasing order of accuracy:

- Monitoring or direct measurement uses Continuous Emissions Monitoring Systems (CEMS). Where greenhouse gases are directly measured, a calculation methodology does not need to be specified.

- Intermittent (periodic) direct measurements use source (stack) testing as a "snapshot measurement in time". The measurement result is then extrapolated over a period of time to determine emission values for that time period.
- Calculated based on surrogate measures uses correlations developed between measured emission rates and related parameters. This is the most common form of measurement (e.g., fuel consumption).
- Extrapolation from historic data uses past information to determine current operating conditions (e.g., runtime and loads).
- Estimates from design requirements uses design information and facility configuration to determine likely emissions values (e.g., power requirements for equipment determine fuel consumption).
- Estimates from agreements use contractual arrangements to provide a product or service to determine likely emissions values (e.g. power supplied, fuel delivered).

The following is a description of the six calculation categories in decreasing order of accuracy:

- Mole balance with efficiency factors determines an emission factor based on the mole balance of carbon between the input and the output of a source with some assumed efficiency factor.
- Equipment-specific emission factors are determined based on the measurement of the input and output of the equipment at an operating condition similar to normal operations.
- Manufacturer's emission factors are determined based on manufacturer testing.
- Models based on surrogate parameters can derive emission factors based on scientific models that do not have a parameter directly related to the emission (e.g. soil surface temperature and methane emissions from a coal pile).
- Generic emission factors based on a sample of equipment.
- Top-down emission factors based on the aggregate numbers averaged over a large population.

Alberta Environment has reviewed the calculation methods listed in Table 5 and deemed them acceptable for calculating specified gases under the *Specified Gas Emitters Regulation*. These calculation methods may not cover all regulated industries in Alberta. Facilities may propose facility or sector-specific calculation methodologies if it can be demonstrated the alternate calculations will result in higher accuracy and a better reflection of the facility's emissions profile. Alberta Environment encourages the development of sector-specific calculation methodologies and further refinement of the approved calculation methods. However, the use of alternate calculation methodologies must be pre-approved.

Facilities using these alternate calculation methodologies must include an explanation of the methodology in the compliance report, including a statement on the uncertainty associated with the calculation method. The calculation methods used **must** be consistent between the facility's baseline and compliance report. This is to ensure that changes in the quantities of greenhouse gas emissions between years are actual changes in the

quantities of greenhouse gases released and not the result of changes in methods used to calculate/estimate the facility's emissions.

Facilities must use the same calculation methods for the Baseline Application and annual Compliance Reports. If a better, more accurate methodology is determined for a facility's annual compliance report, the facility must check with Alberta Environment before using the new methodology. As per section 3.3 of the Technical Guidance Document for Completing Baseline Applications, changes in methodology may require the facility to restate its baseline emissions intensity.

Reference	Method	Stationary Fuel Combustion	Industrial Process	Fugitive	Biomass Combustion	Other (incl. Flaring and Venting, Mobile)
1	EC Sector-Specific Guidance	✓	✓			✓
2	CAPP 2005	✓	✓	✓		✓
3	CAPP 2003	✓	✓	✓		
4	CAPP 1999	✓	✓			
5	SGA 2000	✓				
6	CSA 2007	✓		✓	✓	✓
7	ICFPA 2005a	✓	✓		✓	✓
8	ICFPA 2005b	✓	✓		✓	✓
9	US EPA AP 42	✓				
10	API 2004	✓	✓	✓		✓
11	GRI-GLYCalc			✓		
12	GHG Protocol	✓	✓		✓	✓
13	Landfill Protocol			✓	✓	✓

Table 5: Emission Calculation Methods Acceptable to Alberta Environment.

1. Environment Canada, 2003, 2004, *Sector-Specific Guidance Manuals and Protocols (Aluminum Production, Base Metals Smelting/Refining, Cement Production, Primary Iron and Steel Production, Lime Production, Primary Magnesium Production and Casting, Metal Mining)*, www.ec.gc.ca/pdb/ghg/guidance/calcul_pro_e.cfm, accessed June 14, 2007.
2. Canadian Association of Petroleum Producers (CAPP) and Clearstone Engineering, 2005, *A National Inventory of Greenhouse Gas (GHG), Criteria Air Contaminant (CAC) and Hydrogen Sulphide (H2S) Emissions by the Upstream Oil and Gas Industry, Volume 3 Methodology for Greenhouse Gases [2005-0013] and A National Inventory of Greenhouse Gas (GHG), Criteria Air Contaminant (CAC) and Hydrogen Sulphide (H2S) Emissions by the Upstream Oil and Gas Industry, Volume 5, Compendium of Terminology, Information Sources, etc. [2005-0015]*, www.capp.ca/default.asp?V_DOC_ID=763&SubjectID=414802, accessed June 14, 2007.
3. Canadian Association of Petroleum Producers (CAPP) and Atlas Environmental Engineering Ltd, 2003, *Calculating Greenhouse Gas Emissions [2003-0003]*, www.capp.ca/default.asp?V_DOC_ID=763&SubjectID=414802, accessed June 14, 2007.

4. Canadian Association of Petroleum Producers (CAPP) and Atlas Engineering Ltd., 1999, *CH₄ and VOC Emissions from the Canadian Upstream Oil and Gas Industry – Volume 3 [1999-0011]*, www.capp.ca/default.asp?V_DOC_ID=763&SubjectID=414802, accessed June 14, 2007.
5. SGA Energy Limited, 2000, *Emission Factors and Uncertainties for CH₄ and N₂O from Fuel Combustion*, www.sgaenergy.com/Experience/PE23.htm, accessed June 14, 2007.
6. Canadian Standards Association, 2007, *Canadian GHG Challenge Registry Guide to Entity & Facility-Based Reporting*, www.ghgregistries.ca/assets/pdf/Challenge_Guide_E.pdf, accessed June 14, 2007.
7. The International Council of Forest and Paper Associations (ICFPA), 2005, *Calculation Tools for Estimating Greenhouse Gas Emissions from Wood Product Facilities*, www.wbcsd.org/web/projects/forestry/Pulp-and-Paper-Tool-Guidance.pdf, accessed June 14, 2007.
8. The International Council of Forest and Paper Associations (ICFPA), 2005, *Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills*, www.wbcsd.org/web/projects/forestry/Pulp-and-Paper-Tool-Guidance.pdf, accessed June 14, 2007.
9. United States Environmental Protection Agency (US EPA), 1995 - 2007, *Compilation of Air Pollutant Emission Factors (AP 42) and supplements and updates*, www.epa.gov/ttn/chief/ap42/, accessed June 14, 2007.
10. American Petroleum Institute (API), 2004, *Compendium of Greenhouse Gas Emissions Estimations Methodologies for the Oil and Gas Industry*, www.api.org/ehs/climate/new/upload/2004_COMPENDIUM.pdf, accessed June 14, 2007.
11. Gas Technology Institute (GTI), 2000, *GRI-GLYCalc Glycol Dehydrator Emission Estimation Software*, www.gastechnology.org/webroot/app/xn/xd.aspx?it=enweb&xd=10abstractpage\12352.xml, accessed June 14, 2007.
12. World Business Council for Sustainable Development (WBCSD)/World Resources Institute (WRI), 2001 - 2007, *Calculation Tools*, www.ghgprotocol.org/templates/GHG5/layout.asp?type=p&MenuId=OTAx, accessed June 14, 2007.
13. Alberta Environment, 2007, *Landfill Gas Quantification Protocol for Alberta*.

5.0 Calculating Emissions, Production and Intensity

The following section provides support in calculating a facility's emissions, production and the emissions intensity. Many of the fields in the annual compliance report form are calculated automatically based on data input by the facility. The calculations below can assist the Reporter to check the calculated information.

5.1 Threshold (Total Direct Emissions) Calculation

The purpose of calculating an emissions threshold is to determine whether a facility is included in the *Specified Gas Emitters Regulation*. All large industrial facilities in Alberta emitting over 100,000 tonnes of carbon dioxide equivalent per year are required to reduce their emissions intensity by 12 per cent off their established baseline emissions intensity. Covered sectors in Alberta include but are not limited to:

- Cement
- Chemicals
- Forest Products
- Fertilizer
- Gas Plants
- Heavy Oil
- Landfills
- Lime
- Manufacturing
- Oil Sands
- Petroleum Refining
- Power Plants

Facilities that meet or exceed the emissions threshold in 2003 or any subsequent year are required to submit a Baseline Emissions Intensity Application, and annual compliance reports. Information on the threshold calculation is available in section 5.1 of the Technical Guidance Document for Completing Baseline Emissions Intensity Applications.

5.1.1 Negligible Emissions

Negligible emissions are those emissions released from a source where the total annual emissions from the source are less than 100 tonnes of CO₂e per year. Facilities with negligible emissions sources should state these sources and supporting calculations in their baseline application. If the emissions fall below the negligible emissions threshold, emissions may be excluded in the facility's annual compliance report. Facilities should check these emissions sources periodically to determine whether the emissions source remains negligible.

5.2 Calculating Total Annual Emissions

The total annual emissions, excluding industrial process emissions and carbon dioxide emissions from the combustion of biomass, the incineration of waste, and the decomposition of biomass must be calculated using an appropriate, government-approved methodology listed in section 4.3. All emissions must be reported in the correct source categories described in section 4.1. The resulting total annual emissions from these calculations will be used to calculate the facility's emissions intensity.

Note: the Third Party Verifier must verify that the sources, various units, and emissions factors used are appropriate for the facility and that the calculation of full-year 2008 emissions, including any unit conversions, have been completed in a reasonable and technically defensible manner. If the facility deferred reporting its full-year 2006 and full-year 2007 emissions to its 2008 Compliance Report, emissions from these time periods must also be verified to ensure accuracy of reported information.

5.3 Calculating Total Production

A facility's production is the total quantity of saleable output (except where the facility does not produce an output) generated by the facility and must comply with the definition of production in section 1(r) of the *Specified Gas Emitters Regulation*. Product is used as a denominator to calculate the facility's emissions intensity. A facility must establish an appropriate production metric that accurately reflects the facility's operations and production mix that is consistent with industry accepted normal production unit for the sector to which the facility belongs. This production metric should reflect the main greenhouse gas activities at the facility and should result in a stable denominator metric if the facility's operations remain unchanged. By having a stable denominator metric, the facility will be able to demonstrate real reductions in greenhouse gases as a change in emissions per unit production.

Total annual production for a facility is calculated as the total saleable product produced by that facility. All major production items associated with the release of greenhouse gas emissions must be included and expressed in units of production appropriate for their operation that are widely accepted by the industry to which the facility belongs. All units of production must be specified in the *International System of Units (SI units)*.

The *Specified Gas Emitters Regulation* describes Production as the quantity, expressed in the applicable units of production, of

- (i) end product produced by a facility, or
- (ii) any input, output or other thing specified under subsection (4) of the *Regulation*.

Subsection (4) of the *Regulation* states that:

*If a facility **does not** produce an end product, the director may specify an input, output or other thing as the standard of measurement of production of the facility for the purposes of this Regulation.*

A facility that does not have an end product (eg: landfill) may use a different denominator metric.

The Third Party Verifier must verify that the production items (i.e.: end products) used are appropriate for the facility and that the calculation of full-year 2008 production values including unit conversions for the facility, have been completed in a reasonable and technically defensible manner. If the facility deferred reporting its full-year 2006 and full-year 2007 production data to its 2008 Compliance Report, these emissions must also be verified to ensure accuracy of reported information.

For the 2007 compliance period, Alberta Environment received reports using intensity metrics that did not use end product in the denominator metric. These included using Refinery Activity Index (RAI) and Inlet Gas as Production metrics. These alternate denominators are being reviewed to better understand their relevance, ability to track against a facility's emissions, the impacts of changes over time and potential changes to more stringent reduction targets. For the time being, facilities using alternate denominator metrics must submit compliance reports with both the proposed denominator metric and with actual production data until such time as the Director reaches a decision on these metrics. Alberta Environment will make a final determination on these denominator metrics in 2009.

5.4 Calculation of Net Emissions Intensity

The Net Emissions Intensity (NEI) for a facility is used to determine compliance with the facility's Net Emissions Intensity Limit (NEIL). The Net Emissions Intensity Limit is calculated as a 12 per cent reduction obligation off the facility's **APPROVED** baseline emissions intensity (BEI). The reduction obligation for new facilities is scaled at a rate of 2 per cent per year starting in the facility's fourth year of commercial operation. If the BEI for the facility is no longer relevant or does not accurately reflect the facility's operations, the Person Responsible must contact Alberta Environment to discuss re-establishing the emissions intensity baseline for the facility.

The net emissions intensity for a regular facility is determined by calculating the ratio of total annual emissions to total annual production expressed in the appropriate unit of production as expressed in the following formula:

$$NEI = TAE / TAP$$

Where:

NEI is the net emissions intensity;

TAE is total emissions (January 1 – December 31, 2008);

TAP is total production (January 1 – December 31, 2008);

Guidance on calculating the net emissions intensity for integrated and stand-alone cogeneration facilities is discussed in section 7.0.

5.5 Net Emissions Intensity Limit Calculation

Facilities are assigned a Net Emissions Intensity Limit, which is calculated by multiplying the appropriate reduction target for the facility by the facility's approved Baseline Emissions Intensity. The reduction target for an established facility is set at a 12 per cent reduction below the facility's approved baseline emissions intensity. Targets for new facilities vary depending on the number of years the facility has been in commercial operation (see Table 1). These facilities have no reduction target for their first three years of commercial operation.

The Net Emissions Intensity Limit for a facility is calculated using the following formula:

$$\text{NEIL} = \text{BEI} \times (1 - \text{RT})$$

Where:

NEIL is the Net Emissions Intensity Limit;

BEI is the Baseline Emissions Intensity for the facility; and

RT is the reduction target for the facility;

5.6 Credit Calculation

Facilities that do not meet their 2008 Net Emissions Intensity Limit through facility improvements will need to use one of three compliance options described in section 3.2. They can purchase Offset Credits from Alberta-based Offset projects, use Emission Performance Credits purchased, banked or transferred from another facility that reduced its emissions intensity below its NEIL, or make a contribution to the *Climate Change and Emissions Management Fund*.

The number of credits that a facility must purchase to meet its reduction target or the number of Emission Performance Credits a facility can generate is expressed in the following formula:

$$C = \text{TAE} - (\text{NEIL} \times \text{TAP})$$

Where:

C if negative, is the number of credits that a facility must purchase to meet its reduction target

if positive, is the number of Emission Performance Credits the facility can generate;

TAE is total emissions (January 1 – December 31, 2008);

NEIL is the 2008 net emissions intensity limit;

TAP is total production (January 1 – December 31, 2008);

Credits must be rounded to integer values following standard rounding practices to obtain the appropriate number of credits for the facility. E.g.: 1.1-1.4 credits would round down to 1 credit, while 1.5-1.9 credits would round up to 2 credits.

5.7 Net Emissions Intensity Calculation

The facility's Net Emissions Intensity for January 1 – December 31, 2008, including compliance actions taken, is compared with the facility's Net Emissions Intensity Limit (NEIL) to determine whether the facility has met its reduction obligation for the reporting period. This is done using the following the formula:

$$NEI = \frac{TAE - (OC + FC + EPC)}{TAP}$$

Where:

NEI is the Net Emissions Intensity;

TAE is Total Emissions (January 1- December 31, 2008);

OC is Offsets Credits;

FC is Fund Contribution;

EPC is Emission Performance Credits; and

TAP is Total Production (January 1- December 31, 2008).

If the facility has not reached compliance, additional corrective action must be taken until it has achieved its emissions intensity limit.

6.0 Cogeneration

The following section provides guidance to facilities submitting annual compliance reports as either integrated or stand-alone cogenerators.

Cogeneration is the combined production of heat for use in a manufacturing processes and the production of electricity as a by-product. Electricity not used within the plant may be offered to the competitive electricity market. Combined use of heat and steam in production and to generate electricity improves the overall efficiency of the plant and can displace higher emissions coal-generated power. Treatment of cogeneration under the *Specified Gas Emitters Regulation* recognizes these environmental benefits associated with the higher energy efficiencies generally afforded by cogeneration operations.

The cogeneration calculation methodology presumes that during the baseline and subsequent compliance periods, the heat was sourced from a conventional boiler operating at an efficiency of 80 per cent and the electricity was produced from an NGCC (Natural Gas Combined Cycle) electricity generation plant with a greenhouse gas intensity of 0.418 CO₂e tonnes/MWh. No reduction target is placed on the emissions associated with electricity generation.

Facilities reporting as an integrated cogeneration facilities must complete the 2008 Specified Gas Compliance Report for Regular Facilities and complete section D of the compliance report. Facilities reporting as stand-alone cogeneration must complete the 2008 Specified Gas Compliance Report for Stand-alone Cogeneration.

6.1 Definitions

Standalone cogeneration facilities are those units that derive all their energy outputs from on-site fuel combustion. These units do not have any other external energy inputs. All the thermal and electrical output should be traced down to a single source.

Integrated cogeneration facilities are those units that, in addition to their own fuel source, also have other sources contributing to generating thermal or electrical output. This source could be combustion at the host site, any exothermic reaction or in some cases import or export of steam from second heat source depending upon demand.

6.2 Cogeneration Reporting Requirements

Reporting requirements for cogeneration facilities differ from reporting requirements for regular facilities. This is to recognize the environmental benefits of the combined generation of heat and electricity at a facility. Facilities that use deemed greenhouse gas emissions must provide the following information in their 2008 Specified Gas Compliance Report:

- Total greenhouse gas emissions (G_T) in tonnes CO₂e from the cogeneration facility for January 1 – December 31, 2008.

- Fuel used by the cogeneration facility for January 1 – December 31, 2008;
- If fuel factors are used to calculate the greenhouse gas emissions, provide the factors with references;
- If fuel analysis is used to calculate the greenhouse gas emissions, provide a synopsis of the fuel analysis;
- Total net heat production (H) in GJ produced by the cogeneration facility for January 1 – December 31, 2008;
- Mass/volume of fuel deemed used to produce heat for January 1 – December 31, 2008;
- Total electricity generation (E) in MWh generated by the cogeneration facility for January 1 – December 31, 2008;
- Deemed greenhouse gas emissions from electricity generation (D_E) in tonnes CO₂e for January 1 – December 31, 2008.

The Reporter should also provide the following information either in the comments section of the 2008 Specified Gas Compliance Report or in a separate document:

- Simple conceptual/logic diagram of the cogeneration layout including boundary, and control volume used for heat calculations;
- A description of the cogeneration unit boundary;
- Explanation of how heat calculations were done, including how the enthalpies were averaged;
- Various thermal streams and annualized flow averages, temperature averages, and pressure averages for each stream; and
- Hours of operation of the cogeneration facility for January 1 – December 31, 2008.

Additional information on heat calculations, cogeneration facility boundaries, etc. is available in the Additional Guidance for Cogeneration.

6.3 Greenhouse Gas Emissions from Cogeneration

Total annual greenhouse gas emissions for both integrated and stand-alone cogeneration facilities are calculated according to the following formula:

$$G_T = f \times M_F$$

Where:

G_T	=	Total greenhouse gas emissions from the cogeneration facility for the year/half-year	[tonnes CO ₂ e]
f	=	Emission factor for the fuel used in the cogeneration facility	[tonnes CO ₂ e/unit fuel]
M_F	=	Mass/volume of fuel used in the cogeneration facility during the year/half-year	[units of fuel used]

The Person Responsible may choose to:

- 1) Calculate site-specific emission factors for the fuel used in the facility based on the compositional analysis of the fuel. If this method is used, the Person

Responsible should report the detailed fuel analysis and calculation procedures used to develop the emission factor in section D2 of the compliance report.

- 2) Use an industry standard emission factor. If this method is used, the Person Responsible should provide references for the source of the emission factor.

6.4 Deemed Greenhouse Gas Emissions for Electricity Generation

Deemed greenhouse gas emissions are calculated according to the methodology outlined.

6.4.1 Measure the Total Electricity Generated by the Cogeneration Facility

Deemed emissions associated with electricity generation are calculated based on total. That is, the calculation should account for the net electricity that crosses the cogeneration boundary (exported to the host facility and the electricity grid).

6.4.2 Calculate the Deemed Greenhouse Gas Emissions for Electricity Generation

Deemed greenhouse gas emissions for a cogeneration facility are based on a NGCC turbine with a deemed greenhouse gas emission intensity of 0.418 tonnes CO₂e/MWh and are calculated according to the following formula:

$$D_E = 0.418 \times E$$

Where:

D_E	=	Deemed greenhouse gas emissions from electricity generation	[tonnes CO ₂ e]
E	=	Total electricity generation by the cogeneration facility during the year	[MWh]

6.5 Net Emissions Intensities

The net emissions intensity calculations differ between integrated and stand-alone cogeneration facilities. Integrated cogeneration units may have multiple products depending on the nature of the facility.

Stand-alone cogeneration facilities produce heat and electricity; however, emissions associated with electricity generation are excluded from the emissions intensity calculation.

6.5.1 Integrated Cogeneration Facility

The following formula is used to calculate the net emissions intensity of an integrated cogeneration facility:

$$NEI = \frac{TAE - D_E}{P}$$

Where:

NEI	=	Net emissions intensity for the compliance year.	[tonnes CO ₂ e / unit of product]
TAE	=	Total Annual Emissions from the entire facility for the compliance period. <i>(excluding: GHG emissions from industrial process, CO₂ emissions from combustion of biomass and CO₂ emissions from decomposition of biomass but including emissions from the cogeneration unit).</i>	[tonnes CO ₂ e]
D _E	=	Deemed greenhouse gas emissions from electricity generation for the compliance period.	[tonnes CO ₂ e]
P	=	Production for the compliance period.	[appropriate units of production]

6.5.2 Stand-Alone Cogeneration Facility

The emission intensity for stand-alone cogeneration facilities is calculated using the following formula:

$$NEI = \left[\frac{G_T - D_E}{H} \right]$$

Where:

NEI	=	Net Emissions intensity for the compliance period.	[tonnes CO ₂ e / GJ]
G _T	=	Total annual greenhouse gas emissions for the compliance period	[tonnes CO ₂ e]
D _E	=	Deemed greenhouse gas emissions attributed to electricity generation for the compliance period	[tonnes CO ₂ e]
H	=	Total net heat produced by the cogeneration facility during the compliance period.	[GJ]

6.6 Significant Change in Cogeneration Unit Operation

If the operation of the cogeneration facility changes such that there is no material production of one of the energy products, all or part of the Cogeneration Adjustment may be removed from the baseline emissions intensity. This situation could arise if the host facility decreased its take of energy from the cogeneration plant such that one or more of the products was no longer used. These situations will be reviewed on a case-by-case basis.

6.7 Alberta Environment Cogeneration Policy Review

Alberta Environment has identified the cogeneration policy as an area for review following the 2007 compliance period. As such, it has convened a working group of industry, environment organizations, and government to review the current cogeneration policy and determine what, if any, changes will need to be made to balance recognition of the environmental benefits of cogeneration with continuous improvement and greenhouse gas emissions reductions over time. Results from this working group will be applied to the 2009 compliance period.

7.0 Data Confidentiality and Access to Information

7.1 Request for Confidentiality

In accordance with Section 16 of the *Regulation*, the Certifying Official may request certain information in the 2008 Specified Gas Compliance Report be kept confidential for a period of up to five years on the basis that the information is commercial, financial, scientific or technical information that would reveal proprietary business, competitive or trade secret information about a specific facility, technology or corporate initiative. Confidentiality can be granted to specific portions of the compliance report, but cannot be granted for the entire compliance report. The Certifying Official must state the specific information he/she wishes to have kept confidential and include justification for the request by the March 31 compliance report deadline. If additional information is requested, the facility may submit a written request for confidentiality and supporting justification along with the information.

Each confidentiality request will be reviewed by Alberta Environment and a decision rendered by the Director within 150 days from the letter of submission date. During this time, the portions of the information for which confidentiality has been requested will be considered prescribed information under the Freedom of Information and Protection of Privacy Act.

Note: requests for confidentiality submitted after the compliance deadline may not be accepted by Alberta Environment.

The confidentiality request and evaluation is described in Figure 2 below.

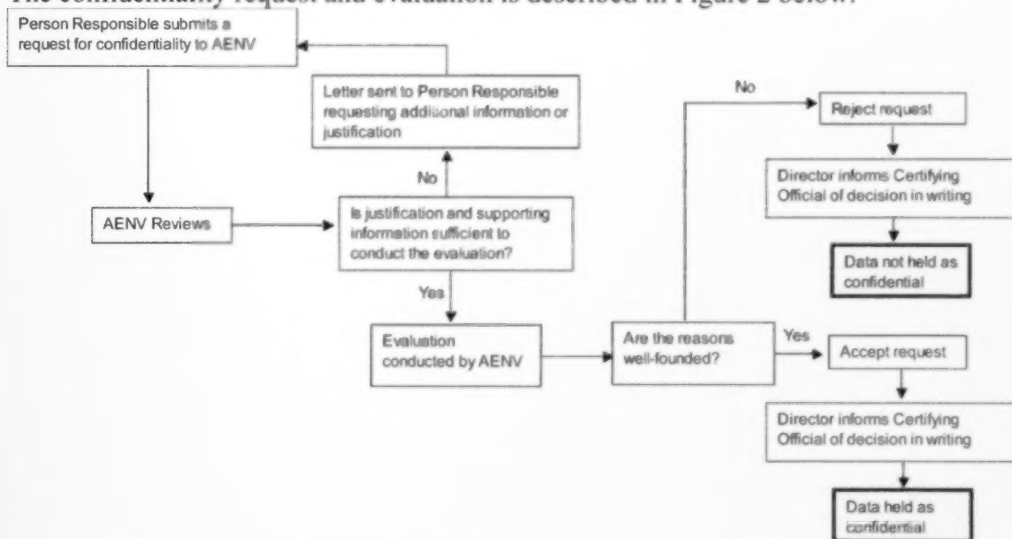


Figure 2: Confidentiality Process for the Specified Gas Emitters Program

As per section 17 of the *Regulation*, the Director must submit an annual confidentiality report to the Information and Privacy Commissioner. This report must include the number of confidentiality requests received, number of confidentiality requests approved, and the period of time prescribed for each approved request.

7.2 Access to Annual Compliance Report Information

Prescribed (confidential) information may be published in aggregate form such that individual facility information cannot be identified.

Non-confidential information contained in the baseline application or compliance report may be published in any form or manner the Director considers appropriate.

Persons wishing to access baseline or compliance information that has not been deemed confidential may submit written requests for information directly to the facility, or to the Director, Alberta Environment. Figure 3 shows the process for requesting access to information reported under the *Regulation*.

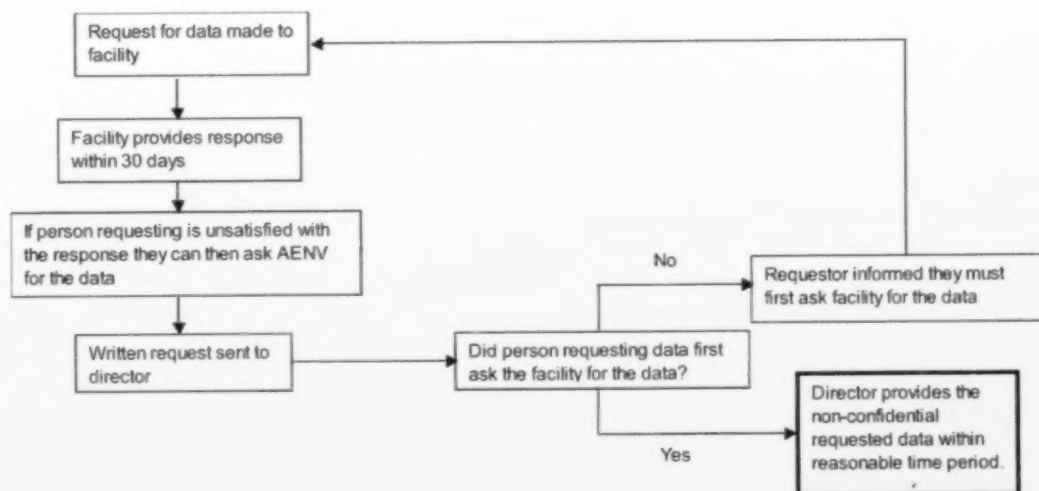


Figure 3: Process for Requesting Non-Confidential Information Reported Under the Specified Gas Emitters Regulation.

8.0 Verification by Third Party Verifier

Third party verification is intended to provide an independent third party review of the facility's 2008 Compliance Report before it is submitted to Alberta Environment. This review provides additional assurance that the compliance reports received are reliable and of sufficient quality to determine the facility's net emissions intensity over the compliance period.

The Third Party Verifier must verify that the facility compliance obligation was compared against its approved baseline emissions intensity, and where required, verify the facility's true-up. The third party review should also flag discrepancies in reported data, identify areas where the interpretation in the reported data differs from the guidance provided by Alberta Environment, and flag material and immaterial discrepancies encountered.

The requirement for third party verification is consistent with international standards requiring independent, third party verification for greenhouse gas inventories. The Third Party Verifier's Report is used for information purposes to assist Alberta Environment in reviewing and understanding the facility's submission. Third Party review should flag discrepancies in reported data, identify areas where the interpretation in the reported data differs from the guidance provided by Alberta Environment, and flag material and immaterial discrepancies encountered. Facilities are encouraged to review the verification report, and where possible, make corrections to their submission prior to submitting their compliance report. This ensures greater accuracy and correctness in the final submission. However, the audience for the Third Party Verifier's Report is Alberta Environment. As such, this report must meet the requirements outlined in section 8.3.4 below. Third Party Verifier's Reports that do not meet these requirements may be deemed incomplete. Incomplete reports will not be accepted by Alberta Environment and could result in the facility's compliance report being considered incomplete and the facility being deemed out of compliance with the *Specified Gas Emitters Regulation*.

Additionally, Alberta Environment will be conducting an annual audit on up to 10 per cent of the compliance reports received. Alberta Environment's audit process is described in more detail in section 9.0.

The following section provides guidance to facilities undergoing third party verification.

8.1 Peer Review Process

Alberta Environment has adopted ISO 14064: Part 3 as the verification standard for greenhouse gas emissions reporting in the province. ISO14064: Part 3 clause 4.8 notes that, ISO14065 and some GHG programs require a "peer review" be conducted. This peer review process requires that persons different from those who undertook the fieldwork (i.e. assessed the GHG Information System and its controls, the GHG data and information, and conducted the assessment against the verification criteria) perform a final evaluation of the evidence and conclusions of the verification team.

Third party verification performed by a Third Party Verifier provides an independent, third party review of a facility's data management and specified gas compliance reporting. This process provides Alberta Environment additional assurance that there are no significant anomalies and that the information reported is accurate and consistent with the requirements of the *Specified Gas Emitters Regulation*.

Alberta Environment has not pre-approved third party verifiers. Minimum qualifications for third party verifiers are specified in the *Regulation* and in this document. Third Party Verifier credentials and supporting information should be identified in section G of the 2008 Compliance Report.

8.2 Verification Fundamentals

8.2.1 Terminology

Assurance is used to encompass and define a range of levels of assurance where an assurance practitioner (verifier) is engaged to issue a written communication expressing a conclusion concerning a subject matter for which the accountable party is responsible.

Compilation refers to collecting and completing the facility's baseline application submission. A facility may choose to hire an external, qualified person to complete (compile) the baseline application. This compiled application must be verified by an independent third party verifier prior to being submitted to Alberta Environment.

Limited assurance is a moderate level of assurance, or negative assurance. Limited assurance is based on identifying anomalies rather than confirming an assertion.

Materiality refers to an error, omission or misrepresentation that would affect the GHG assertion stated in the baseline emissions intensity application. Materiality is discussed in section 8.2.7.

Reasonable assurance is a high level of assurance, or positive assurance. Reasonable assurance is a direct factual statement expressing the opinion of the verifier.

Third Party Verifier describes the person or persons conducting the independent, third party review of the facility's submission. The expectation is that the Third Party Verifier will perform a verification of a facility's baseline application submission.

Verification describes the process by which an objective third party examines or reviews an assertion such as a submission to a regulator and provides an opinion or conclusion on the assertion.

8.2.2 Qualifications of the Third Party Verifier

The Third Party Verifier (lead verifier and verification team) is defined as a qualified person or persons that make up a verification team that verifies and provides assurance on a facility's compliance report.

The lead verifier must be a chartered accountant or professional engineer in good standing and be trained in one of the three acceptable verification methodologies discussed in section 8.2.4. Additionally, the verification team should have technical expertise in the following areas:

- Data audit practices and data verification standards
- Detailed knowledge of the *Specified Gas Emitters Regulation* and associated requirements
- Verification criteria and their appropriate application within the defined scope of the verification
- Technical expertise for the sector the audit team plans to operate in including:
 - The specific GHG activity and technology
 - Identification and selection of GHG sources, sinks, reservoirs
 - Quantification, monitoring and reporting, including relevant technical and sector issues
 - Situations that may affect the materiality of the GHG assertion, including typical and atypical operating conditions
 - Be able to operate as a business including, policies, finances, and quality review of products or services

The lead verifier must sign and submit the original Statement of Qualification (SoQ).

The Statement of Verification must be signed by a qualified individual on the team with the delegated powers to accept legal responsibility for the information provided.

Electronic signatures are not permissible under the Specified Gas Emitters program.

The Regulation also requires the Third Party Verifier to be an individual. If a company wishes to sign on behalf of the Corporation, sign-off may be done as:

Company Name
Per [Corporate Binding Official]

All documents listed above must be submitted to Alberta Environment with original signatures from a designated authority or the submission may be deemed incomplete.

8.2.3 Independence

Independence is a surrogate measure for the objectivity of the verifier and is a key qualification of a Third Party Verifier. The Third Party Verifier must be able to demonstrate independence and have the appropriate systems in place to document this independence to be qualified to undertake a third party verification. Independence is discussed in more detail in the Guidance Document for Third Party Verifiers.

The Third Party Verifier must submit a signed original Conflict of Interest (Col) Checklist with the compliance report.

8.2.4 Verification Standards

Third Party Verifiers must use one of the following verification standards:

- ISO 14064 Part 3 – Greenhouse Gases: Specification with guidance for the validation and verification of greenhouse gas assertions
- Standards for Assurance Engagements, Canadian Institute of Chartered Accountants (CICA) Handbook – Assurance Section 5025
- International Standard on Assurance Engagements (ISAE) 3000 - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information

These standards ensure a consistent level of rigour in the verification process such that a peer verifier or auditor would come to the same conclusion as the original verifier.

8.2.5 Verification Criteria

The following documents provide guidance to assist the verifier in completing the third party verification:

- Climate Change and Emissions Management Act
- Specified Gas Emitters Regulation
- Technical Guidance Document for Completing the 2008 Specified Gas Compliance Reports
- Technical Guidance Document for Completing Baseline Emissions Intensity Applications
- Additional Guidance on Cogeneration Facilities
- Alberta Environment's guidance documents for Offsets projects (see Related AENV publications for a complete list).

8.2.6 Level of Assurance

Alberta Environment requires all compliance reports be verified to a limited level of assurance. This requires the verifier to obtain and check information through enquiry, analytical procedures, and discussion. Greenhouse gas verification done to a Limited level assurance is more stringent than financial verification done to a negative level of assurance, but is not sufficient for the Verifier to come to a conclusion. Therefore, a

limited level assurance statement should be phrased “Based on our work described in this report, nothing has come to our attention that causes us to believe that the GHG statement is not, in all material respects, in accordance with the approved quantification protocols”.

Greenhouse gas emission inventories, data systems, and monitoring are new and evolving fields. Alberta Environment recognizes that the level of sophistication in greenhouse gas emissions monitoring and data systems varies between sectors and facilities. Alberta Environment expects the level of emissions tracking to improve over time, and may require a higher level of assurance in future compliance cycles.

8.2.7 Materiality

Materiality refers to an error, omission or misrepresentation that may affect the GHG assertion stated in the annual compliance report.

Qualitative materiality refers to errors, omissions or misrepresentations of a non-numerical nature; for example, a misleading presentation of circumstances. Determining whether a qualitative materiality discrepancy has occurred is at the professional judgement of the Third Party Verifier.

Quantitative materiality refers to errors, omissions or misrepresentations of a numerical nature. Examples include inaccuracies in the input data, omission of sources, and inappropriate application of calculation methodology. Third Party Auditors should further breakdown quantitative materiality issues into material and immaterial errors based on a 5 per cent materiality threshold. That is, errors causing less than 5 per cent change in over all emissions are deemed **immaterial**. Errors causing a greater than 5 per cent change in overall emissions are deemed **material**. If the aggregate sum of immaterial errors results in a discrepancy greater than 5 per cent, the submissions will be deemed to have exceeded the 5 per cent materiality threshold. Facilities are required to correct material discrepancies before submitting their baseline application.

The Third Party Verifier may issue a limited level verification statement for a submission containing immaterial errors. However, the Third Party Auditor cannot provide a verification statement and report for a Specified Gas Compliance Report that contains material errors.

8.3 Verification Process

The following selections provide guidance on the verification process.

8.3.1 Engaging a Third Verifier

The Certifying Official is responsible for completing the compliance report and engaging a Third Party Verifier to conduct the verification of the Compliance Report. The Person Responsible should ensure that the Third Party Verifier hired to complete the verification meets the requirements for a Third Party Verifier identified in section 8.2.2 above.

Both the Certifying Official and Third Party Verifier need to confirm that there are no actual or perceived conflicts of interest that may compromise the impartiality of the Third Party Verifier. The Conflict-of-Interest Checklist (COI) should be filled out as part of the procurement process and be submitted to Alberta Environment as part of the facility's annual compliance report. If the Third Party Verifier is utilising external resource persons on its verification team, the external team members must also complete and submit a Conflict-of-Interest Checklist.

If it is determined that there is a real or potential conflict of interest, and both parties wish to pursue the engagement, written evidence must be provided to Alberta Environment stating that actions will be taken to manage the conflict to preserve actual and perceived independence. Alberta Environment will assess all potential conflict of interest cases.

If a potential conflict of interest cannot be effectively managed, the facility must select an alternate Third Party Verifier that meets the criteria for independence discussed in section 8.2.3.

Impartiality must be monitored through the verification. If an actual or perceived conflict of interest is identified, the Certifying Official must notify Alberta Environment and work with the Third Party Verifier to manage the conflict.

8.3.2 Planning the Verification

The Third Party Verifier should design a verification plan to support a limited level assurance statement for the facility's compliance report. The verification plan should:

1. Set the objectives of the verification.
2. Assess the potential risks in the GHG data management system by
 - a. Assessing the inherent and control risk associated with GHG data and data management system to determine areas for further investigation.
 - b. Performing analytical testing on the draft GHG assertion to determine areas for further investigation.
3. Assess the potential magnitude of any errors, omissions and misreporting by conducting a magnitude and sensitivity analysis on the reported data to determine parameters that significantly effect the GHG assertion.
4. Set an initial quantitative materiality level for any errors, omissions or misreporting.
5. Design and document a verification plan and sampling plan that details which verification procedures will be applied to meet the objectives of the verification.
6. The verification plan should also show the connections between the verification objectives, risks, magnitude of errors, anomalies, materiality, and procedures and should take into account the GHG data management systems as this determines the control risk for the next verification process.

For example, one objective should be to determine whether the GHG inventory is complete. The verification procedures for this objective could include:

- A site visit to inspect and visual confirm the GHG inventory.
- Inquiring how the client ensured the completeness of the GHG inventory.

The Third Party Verifier and Certifying Official should determine a reasonable timeframe and schedule for the verification. This will include identifying key contacts for the facility, setting dates for site visits, and estimating a completion date for the verification. This allows both parties to set up an appropriate verification schedule to complete the verification as efficiently as possible.

8.3.3 Site Visits

Albert Environment encourages third party verifiers to conduct a site visit as part of their verification. Site visits should be used to help confirm the facility's submission including identification of emissions sources, products and measurement/estimation methods. The site visit is also used to confirm the facility boundary.

If a verifier chooses not to conduct a site visit as part of the verification process justification must be provided in the verification report.

8.3.4 Access to Information and Supporting Materials

The Certifying Official must provide sufficient information to allow the Third Party Verifier to evaluate completeness of the compliance report and render a limited level assurance statement. This includes:

- The Baseline Emissions Intensity Application;
- The 2008 Specified Gas Compliance Report;
- A description of the site processes;
- A simplified process flow diagram;
- An inventory of GHG sources;
- A brief description of the GHG data management system and quantification protocol used to calculate the GHG emissions;
- Key supporting documents used to compile the compliance report; and
- Where required, access to the facility to conduct a site visit.

Other documents may be requested to support the verification and will be facility specific.

A facility's emissions performance and compliance obligation is measured as a comparison between the facility's annual compliance report and its approved baseline emissions intensity. The verifier must compare the compliance report against the facility's approved baseline to ensure consistent reporting methodology is used and that the facility is reporting against its approved BEI. **Facilities submitting against an unapproved baseline must have written consent from Alberta Environment before submitting their compliance report. Compliance reports using unapproved baselines without written consent from the Director will not be accepted for compliance under the Regulation.** If the facility wishes to re-establish its baseline emissions intensity, the facility must follow the appropriate process outlined in section

3.3 of the Technical Guidance for Completing the Baseline Emissions Intensity Application.

The Certifying Official can assist the verification process by having documents and records collated and available for the Third Party Verifier prior to the commencement of the verification. This will make the verification process easier and less expensive.

8.3.5 Verification Plan and Sampling Plan

The Third Party Verifier must develop a verification plan and a sampling plan, which should be submitted to the facility for review before they begin the detailed verification. Both documents must be included in the Third Party Verifier's report submitted to Alberta Environment.

The **verification plan** documents the terms of the engagement and the potential verification procedures. Specific verification procedures will be determined based on anomalies encountered in the preliminary testing and risk identification.

The **sample plan** is a supporting document that is developed on-site once the verifiers have done an initial assessment of the robustness of the facility's greenhouse gas emissions data and emission management systems. The sampling plan will typically identify the size of sample required for the verifier to achieve a reasonable level of comfort with the reported data, and render a limited level assurance statement.

8.3.6 Third Party Verification

The Certifying Official can support and facilitate the verification by ensuring that the appropriate staff are available to answer questions and provide information throughout the process. It is important however, that key personnel are made available during the site visit as this greatly improves the verifier's ability to check data in a timely and efficient manner.

8.3.7 Closing meeting

The Third Party Verifier is encouraged to provide the draft report to the Certifying Official. Parties may schedule a close-out meeting to review the verification findings and attempt to resolve outstanding issues prior to submitting the compliance report.

The Certifying Official must submit the Third Party Verifier's report to Alberta Environment with the facility's 2008 compliance report.

8.3.8 Verification Report

The Third Party Verifier's report is a summary and discussion of the Third Party Verifier's verification procedures and results. This report is submitted to Alberta Environment as part of the facility's compliance report package. It should be sufficiently

complete to provide Alberta Environment assurance that the values reported in the compliance report are accurate and correct based on the information available.

The Third Party Verifier's report must contain:

- the final verification plan;
- the final sampling plan;
- a complete verification schedule;
- names and roles of verification team members;
- a risk assessment;
- findings identifying any material and immaterial discrepancies found; and
- a limited level assurance statement for the baseline application.

Table 6 contains a template for the Third Verifier's Report that meets the requirements identified above.

Section	Content
1. Verification Report	Summary table containing: Facility identification information Facility contact information Verification objective Verification summary Audit team members Report and audit dates
2. Introduction	Provide an introduction to the facility and the verification. This should include the facility's baseline emissions intensity and its net emissions intensity target.
3. Objective	Discuss the objective of the verification
4. Scope	Discuss the scope of the objective
5. Verification Criteria	List the verification criteria used and any relevant, supporting documentation used
6. Final Verification Plan	Provide a detailed discussion of the final verification plan including: <ul style="list-style-type: none"> • Methodologies • Key emissions sources • Final sampling plan • Other relevant information
7. Audit Schedule	Provide a list of verification activities and dates
8. Verification Procedures	Identify steps taken during the verification including: <ul style="list-style-type: none"> • Methodologies used to assess/verify emissions data • Comparison with approved BEI • Details of site visit • Other relevant information
9. Verification Findings	Discuss findings and results: <ul style="list-style-type: none"> • Material and immaterial discrepancies identified • Data management system and controls • Emissions sources • Process flow diagram for the facility

	<ul style="list-style-type: none"> • Facility boundary compared with the facility definition under the <i>Regulation</i> • Statement of findings
10. Statement of Verification	This must be the Statement of Verification (SoV) from the compliance report form
11. Verification Team	Clearly identify all team members and their respective duties
12. Appendix	Any relevant documentation such as methodologies, and calculations that provide clarity and assist Alberta Environment in assessing the completeness of the review.

Table 6: Third Party Auditor's Report Template.

Working papers do not need to be included in the Verification Report, but should be retained by the verifier for at least five years, and may be requested by Alberta Environment if additional information or clarification is needed.

8.3.9 Statement of Verification

There are three possible verification statements that can be issued for a limited level of verification:

- a limited level assurance statement
- a qualified limited level assurance statement
- an adverse assurance statement

Limited Level of Assurance Statement

This statement of verification is issued by the Third Party Verifier if the verifier is satisfied that they have undertaken sufficient procedures and there has been sufficient and appropriate evidence supplied to determine that nothing has come to their attention that causes them to believe that the compliance report is not fairly stated. This report may be issued despite remaining immaterial discrepancies.

Qualified Limited Level of Assurance Statement

A qualified statement of verification is issued if the verifier is unable to form an opinion on certain aspects of the compliance report due to circumstances beyond the control of the Third Party Verifier or the Certifying Official. Examples include the disposal of records in compliance with regulations or the destruction of records in a natural disaster. Limitations on the scope of the assurance should be clear in the statement of verification and the reasons for the limitation should be disclosed in the Third Party Verifier's report. Further guidance is provided in ISO 14064: Part 3, Annex A.2.9.2.

Adverse Assurance Statement

Adverse assurance statements are rarely issued, but when they are, it is because there are outstanding, unresolved, and undisclosed material discrepancies. Adverse assurance statements may issued for example, if verification terminated at the request of the Certifying Official and no Verifier's Report or Statement of Verification was issued. The Certifying Official may consider terminating the verification and ask the Third Party

Verifier not to produce the report if they are faced with an adverse verification statement or if they need more time to prepare for the verification. The Certifying Official must inform Alberta Environment if verification is terminated.

8.3.9.1 Content of the Statement of Verification

The Statement of Verification (form SoV in the compliance report) must be completed, printed, signed and submitted to Alberta Environment as the assurance statement for the third party verification. The Statement of Verification must include the following elements:

- identify to whom the report is directed;
- describe the objective, subject matter and time period covered by the verification;
- identify the GHG assertion including the emissions intensity being verified;
- describe the responsibilities of management and the verifier;
- identify the applicable standards used to conduct the verification;
- identify the criteria against which the GHG assertion and supporting evidence was evaluated;
- state a conclusion that conveys the level of assurance being provided and/or any reservation the verifier may have;
- state the date of the report;
- identify the name of the verifier(s) or firm that undertook the verification; and
- identify the place of issue.

An example of a Limited Level assurance statement is:

Based on our work, nothing has come to our attention that causes us to believe that the Net Emission Intensity of Z tonnes of CO_{2e} per year stated in the Compliance Report is not presented fairly in accordance with the relevant criteria.

An example of a qualified opinion is:

Based on our work, there was not sufficient and appropriate evidence to support a conclusion on the Net Emissions Intensity during the period xx,xx to xx,xx. As referenced in the compliance report application, records for this period were unavailable. Readers are cautioned that statements during this period may not be appropriate for their purposes. Based on our work during the period zz,zz to zz,zz, nothing has come to our attention that causes us to believe that the Net Emission Intensity presented in the Report for this period is not presented fairly in accordance with the relevant criteria.

An example of an adverse opinion is:

Based on our work, the 2008 Specified Gas Compliance Report does not contain all the disclosures required by Alberta Environment. Readers are cautioned that these statements may not be appropriate for their purposes.

8.4 Issues Arising During the Verification

The Third Party Verifier may encounter problems such as errors in the data entry, incomplete emissions sources, and other qualitative and quantitative discrepancies that affect the completeness and accuracy of the facility's compliance report.

If material errors are discovered, the Certifying Official must correct these errors before submitting the facility's compliance report. If immaterial errors are discovered, the Reporter is encouraged to correct the errors; however compliance reports can be verified and submitted with unresolved immaterial errors. More information on materiality is available in section 8.2.7.

The verifier cannot sign off on a facility's compliance report if there are unresolved material discrepancies (discrepancies accounting for greater than 5 per cent of total emissions).

8.4.1.1 Threat of Advocacy

The Third Party Verifier must remain independent through out the verification. If material or immaterial errors are found in the facility's submission, the Verifier cannot consult or provide advice on possible solutions as this will compromise the Third Party Verifier's independence and could compromise the verification results. Decisions on corrective actions must be left to the facility.

8.5 Subsequent Events

In certain circumstances, matters may come to the attention of the Third Party Verifier that renders a previously issued Verifier's Report invalid or inaccurate. Third Party Verifiers are not required to actively monitor the validity of their reports after issuance. However, where it is brought to the attention of the Third Party Verifier that a previous statement is no longer accurate, they must notify the Certifying Official. The Certifying Official must notify Alberta Environment to discuss further follow-up actions that may be required.

9.0 Alberta Environment Audit

Alberta Environment has committed to auditing 10 per cent of 2008 Specified Gas Compliance Reports. Audits are being undertaken to check the accuracy of the reported information and to flag anomalies. Information will be used to ensure transparency in the Specified Gas Emitters Program and to support an annual program review and assessment.

In general, immaterial discrepancies flagged by the auditors will be reviewed and addressed on a go forward basis. Issues will be addressed on a case-by-case basis.

Where material errors are identified, Alberta Environment will work with the facility to determine the most appropriate course of action required to address and correct the discrepancy. Where possible, material discrepancies will be addressed on a go forward basis.

9.1 Facility Selection

Alberta Environment uses the following criteria to select facilities for auditing:

- Coverage across sectors;
- A range of facility sizes and complexity;
- New and established facilities;
- Compliance options used;
- A cross-section of verifiers hired to review third party submissions;
- Anomalies or issues encountered during the desktop review;
- Continuity between previous facility audits; and
- Random selection.

Based on the criteria above, some facilities may be audited more than once or be audited several times in succession to better understand how facility emissions are tracking over time.

9.2 Audit Process

Alberta environment's audit process uses a similar approach to third party verification with a few key differences.

Alberta Environment will conduct an internal review process to determine which facilities will be audited. Alberta Environment will then issue a Request for Proposal. Auditors will be hired based on whether they meet the requirements of a Third Party Verifier; their audit experience; and their sector specific experience. Auditors hired by Alberta Environment must meet the same independence requirements as Third Party Verifiers. An audit team will not be assigned to a facility where there is actual or

perceived conflict of interest unless sufficient action can be taken to ensure independence.

Once the auditors have been assigned, Alberta Environment will issue written notice to the facilities indicating they have been selected for audit and who the auditors will be. The auditors will contact the Certifying Official to set up an appropriate audit schedule, and to request supplemental information needed to complete the audit.

Auditors are encouraged to perform a site visit to support the audit. Details of the site visit and audit will be included in the verification plan, which will be shared with the Certifying Official before the site visit.

Auditors may schedule a close out meeting with the Certifying Official to discuss key findings; however, the audit report **must** be submitted directly to Alberta Environment. Alberta Environment will review the audit findings and coordinate a follow-up meeting with the facility to determine what, if any, follow-up action is needed. Alberta Environment will work with facilities to address outstanding issues.

9.3 Audit Methodology

Auditors must use one of the following three audit methodologies consistent with verification methodology requirements:

- ISO 14064 Part 3 – Greenhouse Gases: Specification with guidance for the validation and verification of greenhouse gas assertions
- Standards for Assurance Engagements, Canadian Institute of Chartered Accountants (CICA) Handbook – Assurance Section 5025
- International Standard on Assurance Engagements (ISAE) 3000 - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information

Auditors will select the methodology appropriate to their audit. Methodology used by the auditors may not be the same methodology used by the Third Party Verifier.

9.4 Level of Assurance

Alberta Environment requires all audits be performed to at least a limited level of assurance, consistent with the requirements for Third Party Verification. However, Alberta Environment may request some audits be performed to a more rigorous reasonable level of assurance. Reasonable audits will only be undertaken on facilities where the auditor deems there to be sufficient data management, quality assurance, and access to information to support reasonable assurance.

9.5 Audit Report

Auditors must produce an audit report for each facility that meets the requirements identified in the Third Party Verification Report. This report, including the assurance statement, must be submitted directly to Alberta Environment. Alberta Environment will review the report and contact the facility to discuss the audit findings and determine what, if any, follow-up is needed.

9.6 Continuous Improvement

Alberta Environment is committed to continuous improvement. Alberta Environment will undertake an annual program review of the Specified Gas Emitters Program, particularly during the initial years of the program. Results from the audit will be used to provide input into what areas are working and what areas need adjustments. As such, Alberta Environment has asked its auditors to identify any issues encountered during the audit. This acts as an independent review of the Specified Gas Emitters Program.

APPENDIX A

Completing the Compliance Report

The 2008 Specified Gas Compliance Report forms are available in Microsoft Excel format on the Alberta Environment Specified Gas Reducing and Compliance website at:

<http://www.environment.alberta.ca/631.html>

The Compliance Report form contains the following sections:

- Section A: Administrative Information**
- Section B: Emissions, Production and Intensity Information**
- Section C: Calculation Methods**
- Section D: Cogeneration Information**
- Section E: Compliance**
- Section F: Additional Comments**
- Section G: Third Party Verifier Information**
- Submission of Information**
- Submission Checklist**
- Conflict-of-Interest Checklist**
- Statement of Qualification**
- Statement of Verification**
- Statement of Certification**
- 2008 Emission Performance Credit Request Form**

Sections A-G forms must be filled out. If a form is not applicable, the N/A box must be checked. This lets the reviewers know the section is not applicable rather than omitted or over looked. All grey cells are calculated automatically to reduce transcription error.

The Conflict-of-Interest, Statement of Qualification, Statement of Verification, and Statement of Certification must be printed and signed. **The signed original forms must be submitted to Alberta Environment as part of the facility's Compliance Report.**

Instructions

This section provides guidance for filling out the Compliance Report form.

Section A: Administrative Information

Information reported in section A should match the information reported in the facility's baseline application form. If any of the information (other than information associated with the Person Responsible, Reporter, Public Contact, Compiler or Third Party Verifier) has changed, the facility must note the change and a rational for the change in the comments section (Section F).

Worksheet A1

Section A: Administrative Information

Facility ID Number

Is the facility six digit ID number used by the facility for the one-window electronic reporting program for greenhouse gas emissions. If the facility did not submit using the EDR for 2004, 2005 or 2006 reporting, it will not have a facility ID. If this is the case, AENV will generate a number for the facility.

Facility Name

This is the legal name for the facility.

EPEA Approval/Registration Number(s)

This is the approval number for the facility operations issued under the Environmental Protection and Enhancement Act (EPEA). If the facility does not have an EPEA approval, N/A must be entered in this space.

EUB License/Registration Number(s)

All active EUB license and/or registration numbers applying to this facility must be entered. If the facility does not have an EUB license or registration, enter N/A.

ERCB License/Registration Number(s)

All active ERCB license and/or registration numbers applying to this facility must be entered. If the facility does not have an ERCB license or registration, enter N/A.

NPRI ID(s)

This is the National Pollution Release Inventory number specific to the facility. If the facility does not have an NPRI ID, enter N/A.

NAICS

This is the six-digit North American Industry Classification System number unique to a facility type. The Person Responsible should use the NAICS code from their most recent Specified Gas Report submission. Statistics Canada's NAICS search tool is available at: <http://www.statcan.ca/english/Subjects/Standard/naics/2002/naics02-menu.htm>

Facilities that have more than one operation should select the NAICS code most representative of the business operations and use that number.

Facility Geographical Coordinates

The latitude and longitude coordinates in NAD 83 for the facility's center point must be entered. Geographic coordinates in NAD 27 can be converted to NAD 83 using Natural Resources Canada's online conversion system: http://www.geod.nrcan.gc.ca/apps/ntv2/ntv2_geo_e.php

Pipeline facilities should pick one point or piece of equipment (such as a compressor station) along the contiguous section of the pipeline operation that will be used as the facility's geographical coordinates.

Facility Legal Land Description

Enter the facility's legal land description. Pipeline facilities may enter N/A for their legal land description.

Facility Location including city, district, province, and postal code

This is the physical location of the facility.

Facility Mailing Address

The facility's mailing address may be a head office that differs from the physical location of the facility.

First Year of Commercial Operation

This is the first full year of commercial operation for the facility. If the facility came on stream part-way through a calendar year, the first year of commercial operation would be its first full year of commercial operation.

2008 Year of Commercial Operation

Enter the year of commercial operation for the facility that concluded on December 31, 2008. This value is calculated automatically but can be adjusted if needed. Any adjustments made to this number should be explained in the comment box.

This number will carry forward to section E of the Compliance Report and will be used to calculate the facility's Net Emissions Intensity Limit.

Describe the criteria used to determine the first and the 2008 year of commercial operation for this facility

Factors to be considered include, but are not limited to, completion of construction, production of output, whether the facility has started receiving feedstock or input, commissioning, the date of operation as stated in the EPEA approval for the facility or other reasonable alternative.

Worksheet A2

Reporter and Reporter contact information

This is the person responsible for the completing the facility's compliance report and is the contact person for the facility for questions pertaining to the compliance report submission.

Reporting Company Information

Enter the reporting company's legal and trade names, reporting company's business number, and reporting company mailing address. The legal and trade names may not be the same. The business number is a nine-digit common identification number provided by the Government of Canada. It is usually found on a company's GST form.

Worksheet A3

Describe any changes to the facility's boundaries, operations and sources of greenhouse gas emissions from what was reported in the Baseline Emissions Intensity Application. Also, describe any impact these changes had on the greenhouse gas emissions, production and intensity of the facility. This could include general information about any changes to the boundaries, operations or activities included at the facility. It could also include changes to what is excluded at the facility and any other relevant boundary or operational change information.

If your facility's production, emissions or emissions intensity has changed by more than 10% from the baseline provide an explanation of the causes of the change and whether this is a permanent change, or an anomaly.

If additional space is required, attach an additional document with the submitted Compliance Report, indicating which section of the Compliance Report the additional information belongs to.

Worksheet A4

Consultant Information

If a consultant was not hired to complete the Compliance Report, an X must be entered in the N/A box. If a consultant was hired to compile and complete the compliance report, the contact information for the consultant must be entered in this space.

Worksheet A5

Public Contact

Contact information for the public contact must be entered in this space. This is the person who is responsible for any public enquiries or questions regarding the facility's compliance report. Enter an X if this person is the same as the Reporter.

Certifying Official

Contact information for the Certifying Official must be entered in this space. This is the person with legal authority to sign for the facility. This information will carry forward to the Statement of Certification and Emission Performance Credit Request Form.

Worksheets A6 and A7

Parent Company Information

Enter an "X" next to each parent company (Canadian company owning 10% or more of the facility) before filling in the required information. Leave the boxes blank if you do not have any additional parent companies.

If the parent company (companies) are from outside Canada, enter all applicable information including contact information and the DUNS (data universal numbering system) number—a nine digit tracking number used by businesses and government to track businesses worldwide.

Section B: Emissions, Production and Intensity Information

Specified Gas emissions (CO₂, CH₄, N₂O, HFC, PFC and SF₆) subject to the *Regulation* are reported by source category and species. This information automatically calculates the total direct emissions (TDE) and total annual emissions (TAE) for the facility. Total annual production information must also be reported. The TAE and production information will be used to calculate the emissions intensity for the facility. The information entered in this section will carry forward throughout the rest of the application.

If the specified emissions from the specified source do not occur at the facility, enter an "X" in the appropriate N/A box.

Worksheets B

Section B: Emissions, Production and Intensity Information

The 2007 Specified Gas Compliance Report required facilities to submit third party verified full-year 2006, full-year 2007 and half year 2007 (July 1 - December 31, 2007) greenhouse gas emissions and production information. Some facilities chose to defer submitting the third party verified full-year 2006 and full-year 2007 greenhouse gas emissions and production information to the 2008 compliance period. These facilities are required to submit full-year 2006, full-year 2007 as part of their 2008 Specified Gas Compliance Report.

Enter an "X" in the appropriate box to indicate if you are submitting the third party verified full-year 2006 and full-year 2007 greenhouse gas emissions and production information in this report, or if they were previously submitted.

Worksheets B1, B1(2) and B1(3)

Section B: Emissions, Production and Intensity Information

More information on each source category is available in section 4.0 of this guidance document.

Stationary Fuel Combustion Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from stationary fuel combustion sources. This information will be used to automatically calculate CO₂e from each entry.

Note, CO₂ emissions from the combustion of biomass are **not** reported in this source category, but non CO₂ emissions from biomass combustion **are** reported in this section.

Industrial Process Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from industrial process sources. This information will be used to automatically calculate CO₂e from each entry. These emissions are included in the calculation of TDE to determine if the facility is over the 100 kt threshold, but are not included in TAE or the facility's emissions intensity for determining the compliance obligation.

Venting Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from venting sources. This information will be used to automatically calculate CO₂e from each entry.

Flaring Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from flaring sources. This information will be used to automatically calculate CO₂e from each entry.

Other Fugitive Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from other fugitive sources. This information will be used to automatically calculate CO₂e from each entry.

On-site Transportation Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from on-site transportation sources. This information will be used to automatically calculate CO₂e from each entry.

Waste and Wastewater Emissions

Enter CO₂, CH₄ and N₂O emissions in tonnes from waste and wastewater sources. This information will be used to automatically calculate CO₂e from each entry.

Note, CO₂ emissions from the decomposition of biomass are **not** reported in this source category; there is a separate field in Section B4 for these emissions.

Formation CO₂ Emissions

Enter CO₂ emissions in tonnes from Formation CO₂ sources. This information will be used to automatically calculate CO₂e from each entry.

Worksheets B2, B2(2) and B2(3)

Section B: Emissions, Production and Intensity Information (continued)

Hydrofluorocarbon (HFC) Emissions

Hydrofluorocarbon emissions must be entered in the appropriate categories relative to their emissions source and species. All emissions of HFCs related to production are required to be reported unless documentation showing that this source is negligible has been provided. If the emissions do not meet the industrial process emissions definition they must be reported under industrial product use.

Worksheets B3, B3(2) and B3(3)

Section B: Emissions, Production and Intensity Information (continued)

Perfluorocarbon (PFC) Emissions

All perfluorocarbon emissions must be entered in the appropriate categories relative to their emissions source. All emissions of PFCs related to production are required to be reported unless documentation showing that this source is negligible has been provided. If the emissions do not meet the industrial process emissions definition they must be reported under industrial product use.

Sulphur Hexafluoride (SF₆) Emissions

All sulphur hexafluoride emissions must be reported in the appropriate category relative to their emissions source. All emissions of SF₆ related to production are required to be reported unless documentation showing that this source is negligible has been provided. If the emissions do not meet the industrial process emissions definition they must be reported under industrial product use.

Total HFC, PFC and SF₆ Emissions

Total HFC, PFC and SF₆ Industrial Process and Industrial Product emissions in tonnes CO₂e are automatically calculated.

Worksheets B4, B4(2) and B4(3)

Section B: Emissions, Production and Intensity Information (continued)

Note: CO₂ emissions from the combustion and decomposition of biomass are not included in the calculation of the TAE and Emissions Intensity for compliance. Non-CO₂ emissions from Biomass combustion and Decomposition must be included in Section B1 in the Stationary fuel Combustion and Waste and Wastewater categories, respectively, and are included in the calculation of the TAE and Emissions Intensity for compliance of the facility.

CO₂ Emissions from the Combustion of Biomass

Enter tonnes of CO₂ emissions from the combustion of biomass materials.

CO₂ Emissions from Decomposition of Biomass

Enter tonnes of CO₂ emissions in tonnes from the decomposition of biomass waste materials in tonnes.

Worksheets B5, B5(2) and B5(3)

Section B: Emissions, Production and Intensity Information (continued)

Total CO₂, CH₄ and N₂O Emissions

The total CO₂, CH₄ and N₂O emissions are all automatically calculated using values already entered in previous sections of the Compliance Report.

Total Annual Emissions Calculation

The Total Direct Emissions, GHG emissions from industrial process, CO₂ from biomass and Total Annual Emissions fields are automatically calculated using values already entered in previous sections of the Compliance Report.

Public availability of GHG emissions information

Enter an "X" in the box if the emissions information is publicly available.

Worksheets B6, B6(2) and B6(3)

Section B: Emissions, Production and Intensity Information (continued)

These worksheets do not apply to facilities using the 2008 Specified Gas Compliance Report for Stand-alone Cogeneration Facilities.

Production Information

Production values for each end product must be entered using appropriate SI units. This information is used to determine total production at the facility. In the total production field facilities should combine all end products in the most appropriate manner for their facility. The default setting is to directly sum all products listed and use the units from the first product listed, but this should be adjusted if a more appropriate combination method exists.

Facilities that do not have an end product (i.e. landfills) may use any input, output or other thing specified under subsection (4) of the *Specified Gas Emitters Regulation*. Enter the total production (P) value and units calculated for the baseline year (combine all applicable production items in an appropriate manner).

List what is included in total production (P). Facilities that produce multiple products must explain (include formulas) how total production was calculated.

Describe how the production calculations were done. Information can also be included in a separate document and referenced in this field.

Public Availability of Production Information

Enter an "X" in the box if the production information is publicly available for the compliance period.

Worksheets B7, B7(2) and B7(3)

Section B: Emissions, Production and Intensity Information (continued)

These worksheets do not apply to facilities using the 2008 Specified Gas Compliance Report for Stand-alone Cogeneration Facilities.

Emissions Intensity

The emissions intensity value is automatically calculated using total annual emissions and total production from previous sections.

Section C: Calculation Methods

This section of the Compliance Report requires:

- Listing of the general category of calculation methodology used for each specified gas by source category;
- Listing of the calculation methodology reference used for each specified gas by source category;
- The description of greenhouse gas emissions estimation and calculation methods and reference materials/data used in calculating the facility's greenhouse gas emissions;
- The reporting of any change in emissions calculation methods between the baseline and compliance years, including the reason why the any calculation methods were modified; and what effect the change had on the emission and emissions intensity values.

Worksheet C1

Section C: Calculation Methods

Method Type

List all the method categories that were used to calculate emissions of each gas species in the appropriate source category field.

Enter 1 for monitoring/direct measurement; 2 for intermittent (periodic) direct measurement; 3 for calculated based on measured surrogate parameters; 4 for extrapolated from historical data; 5 for estimated from design requirements; 6 for estimated from agreements; 7 for mole balance with efficiency factors; 8 for equipment-specific emission factors; 9 for manufacturer's emission factors; 10 for models based on surrogate parameters; 11 for generic emission factors; and 12 for top-down emission factors.

Worksheet C2

Section C: Calculation Methods (continued)

Citation of Method References

List all the method references that were used to calculate emissions of each gas species in the appropriate source category field.

Worksheets C3, C3 (p2), C3 (p3) and C3 (p4)

Section C: Calculation Methods (continued)

Provide details on the method(s) used including the rationale for selection of the specific methods for determining the facility's direct greenhouse gas emissions. Information provided should be sufficiently complete to allow Alberta Environment to understand

how calculations were made. Additional information should be included in a separate document if more space is required. This information must include:

- emission estimation/calculation methodologies,
- all numerical emission factors,
- equations,
- example calculations, and
- citation of reference materials

If your facility includes an integrated cogeneration system please also include:

- Explanation of how heat calculations were done, including the enthalpies;
- Various thermal streams and annualized flow averages, temperature averages, and pressure averages for each stream; and
- Simple conceptual/logic diagram of the cogeneration layout.

Calculation methods and reference materials used for the Compliance Report must be consistent with what was used in the Baseline Emissions Intensity Application for the facility.

Differences in the methods or information used between the baseline and compliance calculations should be noted and a rationale for these differences should be provided. Facilities considering a change in methodology should contact AENV before filing, and should calculate any changes to the BEI that would result from similar methodology adjustments.

Worksheets C7, C8, C9 and C10

Section C: Calculation Methods (continued)

If the emissions reported in this Compliance Report differ from the 2006 or 2007 emissions reported previously under the *Specified Gas Reporting Program*, indicate why and where these differences occur. Also indicate the impact this difference has had on the reported values (i.e. emissions increased or decreased by Y tonnes, etc).

Emissions Data reported under the *Specified Gas Compliance Report* will be reviewed, and the data collected will be updated in the *Specified Gas Reporting Program*.

Additional information can be provided on a separate sheet. Facilities restating emissions data should contact Environment Canada to determine whether they need to restate their emissions under the *National Mandatory Greenhouse Gas Reporting Program*.

Section D: Cogeneration Information

Facilities submitting as stand-alone cogeneration or with integrated cogeneration should complete this section.

Worksheets D1, D1(2) and D1(3)

Section D: Cogeneration Information

Cogeneration Information

Enter an "X" in the N/A box if there was no integrated cogeneration unit operational during full-year 2006, full-year 2007 or full year-2008, or if the facility did not use deemed greenhouse gas emissions for a cogeneration unit in the Baseline Emissions Intensity Application.

For facilities using the 2008 Specified Gas Compliance Report for Stand-Alone Cogeneration facilities, follow the reporting steps outlined below.

GHG Emissions (Cogen)

Enter the *total greenhouse gas emissions* in tonnes CO₂e from the cogeneration unit.

Fuel Use Information

Enter the *type, quantity, units and percent mixture* of the fuels used by the cogeneration unit.

Electricity

Enter the *total electricity generation (E)* in MWh. *Deemed greenhouse gas emissions from electricity generation (D_E)* in tonnes CO₂e is automatically calculated.

Heat

Enter the *total net heat production from cogeneration (H)* in GJ. *Deemed input energy attributed to heat (E_H)* in GJ is automatically calculated. Enter the *mass/volume of fuel deemed used to produce heat (M_H)* in the appropriate units. Enter the *deemed greenhouse gas emissions from heat production (D_H)* in tonnes CO₂e (use the same methodology as used in the BEI application).

Operations

Enter the *Total Hours of Operation of the Cogeneration Facility* in hours.

Worksheets D2, D2(2) and D2(3)

Section D: Cogeneration Information (continued)

If fuel factors were used to calculate greenhouse gas emissions from cogeneration, provide the factors used with references.

Enter the required information. If fuel factors were not used, enter "not applicable".

If fuel analysis was used to calculate greenhouse gas emissions from cogeneration, provide a synopsis of the fuel analysis.

Enter the required information. If fuel analysis was not used, enter "not applicable".

Section E: Compliance

This section of the 2008 Specified Gas Compliance Report determines if the facility has met its net emissions intensity limit (NEIL), and if not, how many Offset Credits, Emission Performance Credits, or Fund Contributions are required to bring the facility into compliance.

Worksheet E1

Section E1: Compliance

The Net Emission Intensity Limit and whether the facility has met this limit are calculated automatically using information from sections A, B and D. If the 2008 Emissions were greater than the Net Emissions Intensity Limit complete worksheets E2-E5 to demonstrate how the facility has trued-up to meet its target. If the *credits required* value is negative, you may request emissions performance credits using the *EPC request form*.

The Reporter must use the Facility's exact approved BEI value found in the BEI Established letter sent to the certifying official following the review of the BEI Application. Unapproved BEIs will not be accepted for compliance without written approval from the Director.

Worksheet E2

Section E2: Compliance (continued)

This section of the Compliance Report permits facilities that did not meet their Net Emissions Intensity Limit to use Fund contributions to achieve compliance. Facilities whose emissions are less than their NEIL or that do not plan to use Fund Contributions to achieve compliance should enter "X" in the N/A box.

Fund Units Purchased

Enter the number of Fund Units that will be purchased from the Climate Change and Emissions Management Fund. Each unit is equivalent to one tonne CO₂e.

Cost of Fund Units

The cost of the Fund Units will be calculated automatically. Please ensure the correct number of Fund units (in tonnes of CO₂e) has been entered. Refunds cannot be given for over-payment into the Fund and contributions are for the current compliance cycle only.

Payment for Fund Units must be submitted along with a copy of Section E2 by March 31, 2009 to:

**Minister of Finance
Alberta Environment
Financial Services Branch
6th floor, South Petroleum Plaza
9915 - 108 Street
Edmonton, Alberta
T5K 2G8**

Date of Purchase

This is the date the payment was submitted to the Minister of Finance. It must be on or before March 31, 2009.

Fund Contribution Receipt Number

This number can be found on the stamp on the Fund Contribution Purchase Receipt provided by the Financial Services Branch.

The company that owns the facility for which this report is being submitted owns these Fund Units.

Fund Units must be owned by the "Person Responsible" in order to be applied for compliance for this facility.

These Fund Units have not been used by any other facility within your company

Fund Credits can only be used once and must be used for the year in which they were purchased.

Some of the Fund Units from the above transaction were applied to other facilities within this company.

Fund Units may not be used by more than one party but payment for fund contributions from multiple facilities owned by the same company can be made in a single transaction. If this facilities fund contribution was made along with another facility enter an 'X' in the TRUE field.

If part of the Fund Units acquired in the above transaction were applied to other facilities, list these facilities (facility name and facility ID number).

Fund Units can be purchased for one or more facilities owned by the same company as a single payment. If a portion of the Fund Units in the transaction were applied to other facilities, list the facility name, facility ID number, and number of credits for each of the other facility(s).

Worksheet E3

Section E3: Compliance (continued)

This section of the Compliance Report permits facilities that did not meet their Net Emissions Intensity Limits to use Offset Credits to achieve compliance. Facilities whose emissions are less than their NEIL, or that do not plan to use Offset Credits to achieve compliance should enter "X" in the N/A box.

Offset Credits Purchased

Enter the number of Offset Credits purchased from offset projects. Offsets must be from an Alberta-based Offset project and must adhere to a government-approved protocol. Offsets should be registered and serialized through the Alberta Offset Registry.

List all Offset Credit serial numbers (or range of numbers) that were retired for true-up for this facility. Also list the registry source.

Enter the Offset Credit serial numbers used by this facility.

The facility must contact the Alberta Offset Registry (or equivalent registry) to have these Offset Credits retired before they are submitted for compliance.

The reductions used to generate the Offset Credits took place in Alberta.

Offset emissions reduction must occur in Alberta.

The reductions occurred from action taken that was not otherwise required by law at the time the action was initiated.

The Offset emissions reduction must occur from action taken that is not otherwise required by law at the time the action was initiated.

The reductions used to generate the Offset Credits occurred after January 1, 2002.

Offset Credits must result from actions taken on or after January 1, 2002, and occur on or after January 1, 2002.

The reductions are real, demonstrable, quantifiable and measurable (either directly or by accurate estimation using replicable techniques).

Reductions in offset emissions must be real, demonstrable, quantifiable and measurable (either directly or by accurate estimation using replicable techniques).

The company that owns the facility for which this report is being submitted owns these Offset Credits.

Offset Credits must be held by the Person Responsible submitting them for compliance.

These Offset Credits have not been used by any other facility within this company.

Offset Credits can only be used once.

The offset project(s) followed an approved Alberta Environment offset protocol and has been verified by a Third Party Verifier.

An emission offset project must be done according to an approved Alberta Environment offset protocol and must be verified by a third party Verifier.

The Offset Credits were verified by a Third Party Verifier.

Offset Credits generated from an offset project must be verified by a Third Party Verifier. The statement of verification for offsets used must be submitted along with the compliance report.

An external company or organization owns part of these Offset Credits.

Offset Credits must be held by the Person Responsible submitting them for compliance. If an Offset Credit is jointly held with another entity, credits must be divided between holders on a pro rata basis.

If so, in the field below please list the company(s) and the appropriate contact information for them.

If an emission offset is jointly held, please list the other company names and contact information for each.

Worksheet E4

Section E4: Compliance (continued)

This section of Compliance Report permits facilities that did not meet their Net Emissions Intensity Limits to use Emission Performance Credits to achieve compliance. Facilities whose emissions are less than their NEIL or that do not plan to use Emission Performance Credits to achieve compliance should enter "X" in the N/A box.

Emission Performance Credits Purchased

Enter the number of Emission Performance Credits being used for compliance. These EPCs can be previously banked EPCs generated at the same facility or purchased from a different regulated facility that generated EPCs in a previous compliance cycle.

List the range of serial numbers and original owner (company that generated) of these Emission Performance Credits.

EPCs are serialized by Alberta Environment. They cannot be used for compliance in the same year in which they were generated.

My company owns all of the above Emission Performance Credits being used for the compliance of this facility.

An Emission Performance Credit must be held by the Person Responsible submitting it for compliance.

None of these credits have been used for compliance by any other facility within your company.

An Emission Performance Credit may only be used once.

None of these credits have been used for compliance by any other facility.

Emission Performance Credit may only be used once and cannot be used for compliance in the same year in which it was generated.

An external company or organization jointly owns some of the above credits.

An Emission Performance Credits must be held by the Person Responsible submitting it for compliance. If an Emission Performance Credit is held jointly between two or more parties, credits must be allocated between holders on a pro rata basis to ensure the credits are only used once.

If so, in the field below please list the company(s) and the appropriate contact information for them.

If an Emission Performance Credit is jointly held, please list the other company names and contact information for each.

Worksheet E5

Section 5: Compliance (continued)

This section of the Compliance Report automatically determines if the facility has achieved its compliance obligation (met its Net Emissions Intensity Limit) through internal action and other compliance options. If the "Intensity Limit Met" field does not show "Yes", then the facility will require additional credits to reach compliance with its Net Emissions Intensity Limit. The submitted report must say "Yes" in this field.

Section F: Additional Comments

Additional supporting information may be entered in this section.

Worksheet F

Section F: Additional Comments

Facility or Company Website

If available, enter the website of the facility or reporting company.

Comments

Enter any additional comments or information that is relevant to the 2008 Specified Gas Compliance Report.

Note: Power plant facilities are required to report gross electricity generation in the additional comment field.

Section G: Third Party Verifier Information

This section addresses the qualifications of the Third Party Verifier and provides information on the verification process. The information entered in this section will carry

forward to the Conflict-of-Interest Checklist, Statement of Qualification and Statement of Verification.

Worksheet G

Section G: Third Party Verifier Information

Third Party Verifier Information

Provide contact information for the Third Party Verifier.

Verification Company Information

Provide contact information for the company undertaking the Third Party Verification.

Verifier Qualifications

Explain how the Verifier satisfies the Qualification requirements for Third Party Verifiers.

Submission Information

This section provides guidance on the submission process for the 2008 Specified Gas Compliance Report.

Facilities requesting confidentiality **must submit a written request** to the Director with appropriate justification and supporting documentation by March 31, 2008. Additional information on confidentiality is available in section 7.0 of this document.

It is an offence under the *Climate Change and Emissions Management Act* to provide false or misleading information. Maximum penalties upon conviction are significant and can include, in the case of knowingly providing false or misleading information, imprisonment: see sections 44 and 45 of the *Climate Change and Emissions Management Act*.

Submission Checklist

This Checklist is to be used prior to submission to ensure all required supporting documentation has been provided. Enter 'X' in the field as each component of the submission is compiled. Enter the file names of any supporting documentation included.

Conflict-of-Interest Checklist

The Third Party Verifier must complete a Conflict-of-Interest Checklist to confirm their independence from the facility or reporting company. If any of the statements are marked true, the verifier must provide documentation of how the potential conflict of interest will be managed. If the potential conflict-of-interest is a sufficient perceived or actual threat to impartiality and cannot be effectively managed, Alberta Environment will not be able to accept a Third Party Verifier's Report from that verifier for that facility.

A signed original Conflict-of-Interest Checklist (not a copy) must be submitted to Alberta Environment.

Statement of Qualification

The Statement of Qualification (SoQ) states that the Verifier meets or exceeds the qualifications of Third Party Verifiers as stated in section 18 of the *Regulation*, and this *Technical Guidance Document for 2008 Specified Gas Compliance Reports*.

A signed original SoQ must be submitted to Alberta Environment.

Statement of Verification

The Statement of Verification (SoV) requires the Third Party Verifier to:

- Describe the objective of the review and the entity or portion thereof, the subject matter, and the time period covered by the review;
- Identify the GHG assertion; Numbers for the core components of the compliance report are included automatically from previous sections.
- Describe the responsibilities of management and the reviewer;
- Identify the applicable standards in accordance with which the review was conducted;
- Identify the criteria against which the GHG assertion and supporting evidence was evaluated;
- State a conclusion that conveys the level of assurance being provided and/or any reservation the Third Party Verifier may have;
- State the date of the report; and
- Identify the name of the lead verifier (and firm).

A signed original SoV must be submitted to Alberta Environment.

Statement of Certification

The Statement of Certification (SoC) requires the designated Certifying Official of the facility to certify that they have reviewed the Compliance Report and have exercised due diligence to ensure that the submitted data and information are true and complete, and the values and information throughout the Application are accurate, based on reasonable estimates using available data and information.

A signed original SoC must be submitted to Alberta Environment.

2008 Emission Performance Credit Request Form

The 2008 Emission Performance Credit Request Form requires the designated Certifying Official of the facility to certify that the facility has emitted less than its Net Emissions Intensity Limit and is entitled to the calculated number of Emission Performance Credits. The number of credits available is calculated automatically.

A signed original Emissions Performance Request Form must be submitted to Alberta Environment.

References

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